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ADVERTISERS' DIRECTORY.—*Continued.*

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VOL. IX. JANUARY, 1900. No. 3.

An Unscientific Enquiry Into Fireproof Building.

WHEN we congratulate ourselves on modern advance in humanity, we are apt to think of theological and other burnings alive as the type and culmination of all the horrors of the past. And yet we burn each other alive in large, elegant, and costly modern hotels; offering only the alternative of deliberate suicide by the always frightful leap from a height.

As this is written it is four months since the hideous catastrophe, in which a hotel only a quarter of a century old and carefully built, for a hotel—kept up in good style—inhabited by wealthy and critical people—managed always by well-known hotel men—was destroyed in an hour with two score of its inmates. Such are, however, our municipal and our national characteristics that no full or authentic account of it has ever been made public, or, so far as is known, brought together. The hasty and generally mistrusted accounts of next morning's newspapers are all that there is for the public in general to build upon. It is, therefore, not altogether surprising that the memory of this horrible incident grows dim, and that there is visible no new, no unusual demand, resulting from it, for protection against such incidents in the future. Sagacious New Yorkers walk their avenues and streets, looking up at this hotel or that, and saying to each other with anticipatory distress: "It is a mere question of months or of days when this hotel goes, and that—which do you say will go first?—they are all fire-traps together, and the next great burning may be worse than the last." It is not, however, apparent that the travelling public avoid the houses which are notoriously structures of carpentry work skilfully combined to form combustible flues, horizontal and vertical, along which fire may run swiftly and effectively. It does not appear that the travelers' books of such hotels as these are left blank while those of the newer and less combustible buildings are filled with travelers' names. The very New Yorker who has counted up in his mind the carpenter-built hotels which will burn brilliantly when next a curtain takes fire, will call upon his out-of-

town friend residing in one of them, and will never think of calling to his attention the well-known character of the building he is in.

And yet let the reader think for a moment of the scene in the fifth and in the sixth story corridors of that hotel on the 17th of March, 1899. Let him picture the scenes that have been described and the other scenes which it requires but little imagination to picture to one's self. The woman standing at a window and waving at brief intervals a white handkerchief to attract the attention of the managers of the very few extension ladders which were on the spot; the woman who, having gained the assurance that she was seen, deliberately shut down the window in front of her to stop the draught; the woman who is described by one who escaped, going on her hands and knees along the fifth story corridor, thus keeping her face below the stratum of smoke and feeling blindly in that noon-day darkness for some means of descent to the street; the women who, as is known from the part of the hotel which they occupied and the point in the cellar where their bodies were found, went wandering about those corridors of the sixth story hoping to find a fire-escape at the southern end since that at the northern end was impassable and the stairs were already destroyed; the woman who escaped from the building by the aid of outsiders, and who died within a few days of her burns, as a trustworthy physician has stated. Put out of sight, if you choose, the more merciful deaths, those by suffocation from smoke, those by falls upon the ground, or the railing, or the stone paved areas; though these also, with their accompaniment of anxious expectancy, of fright, of bewilderment and of long continued anticipation, are not what most people would consider easy deaths; put these out of sight; think only of the deaths by fire, and then try to answer the question whether our material civilization is all that we imagine it to be. People of European stock living in America have six thousand years of tolerably unbroken building traditions behind them; and in the new country they have wealth at their disposal and an absolutely unlimited choice of material; with the result that there are not twenty buildings in New York in which one may sleep secure.

It is not long since there was a fire in one of the rooms in the long and narrow building which fronts on the garden of the Palais Royal and separates it from the Rue Valois. Americans sitting in the garden at the table of their café watched the fire, the primitive means adopted for extinguishing it, the increase in the jets of flame and smoke which burst from the windows, and anticipated a conflagration on a scale to which they were accustomed at home—when, suddenly, one of them noticed the inhabitants of the apartment immediately above, looking out of the window and thus enjoying the sight just so far as the rising smoke and heat would allow them. Indeed, the little garden engines employed did the work, or the work was done for

them by pails of water, and the fire went out. One of these Americans was a scientific man, and, therefore, accustomed to enquire into things; although he was by no means primarily interested in matters of building. He enquired into the structures of the floors in this and other Parisian buildings—not of the most recent date nor of the most sumptuous character, nor of the most approved modern construction. He found that floors and walls alike were commonly devoid of combustible material. He found that when the burning curtain had communicated fire to the wooden dado and to some pieces of furniture, there was nothing left for the fire to do, and that it died down. He found that the flame which burst out of the window and looked so furious, was as brief and hardly hotter than that which one can make with a pile of newspapers; he found, in short, that Paris had not been so built up that accident or carelessness can burn it down again, and that the municipality may, perhaps, be right in spending no time or thought in organizing a fire department on American principles. But also he found that the materials used were inexpensive and the construction adopted was simple, familiar to the masons and to the fitters of light ironwork, and quickly put into place. He found moreover (and this is what surprised him, the American, most) that all of this incombustible construction was light. As he himself expressed it, afterwards, to an American architect of his acquaintance: "It is a light and cheap construction—why do you fellows insist on a heavy and expensive construction?" It is, indeed, the curse of American building that it draws its traditional inspiration not from the continent of Europe but from Great Britain, and that it is not familiar wih masonry. The devices to which our builders resort to make a structure that will not catch fire are something ludicrous when their monstrous cost is compared with the cheap and matter-of-course expedients resorted to in France and Italy. Cast iron first and wrought iron afterwards—these novel materials, and not the simple traditions of sixty centuries in the way of masonry, are what our carpenter-taught builders resorted to when they were told to build fireproof buildings.

It is due to James Bogardus to say that he always asserted the resisting power of cast iron when exposed to the heat of a conflagration. He it was who, in the first half of this century, when rolled and wrought iron as a practical part of a building was not known, insisted upon the value of cast iron as a building material; who built a four-story building in Centre Street, about 1847, with two outside faces made up of it; and who circulated a pamphlet showing that same building in a diagram as it would have appeared had many of the uprights and many of the interties been taken away. He was eager to prove the value of a construction of posts and ties all firmly bolted together, and which would themselves provide what he thought would meet modern requirements, namely, a very tenacious

and economical system of building which, in most cases, fire would hardly affect. Moreover, he and his assistants were extremely uncompromising, and the writer well remembers in 1856, or thereabouts, the violent protest of one of these, a mathematician named Thompson, he being told that cast iron might do for shop fronts. The whole or none, was the Bogardus cry at this time. The cast iron façades which were so commonly built in New York from 1860 to 1875 were really originated by the inventor whom we have named.

Bogardus was so far right that the jeremiads of those who feared fire more than they trusted metal were largely disproved by the event. When the Boston fire swept away acres of wooden buildings with cut granite exteriors, its work was done thoroughly. A week later nothing stood erect in the burnt district except towering and tottering angles where two brick walls mutually sustained one another, and a number of cast iron shop fronts. Undoubtedly, these latter would have shown distortion, warpings, and twistings had they been carefully measured and aligned, but they stood, and there seemed no reason why the superincumbent walls should have fallen from them except that the burning floors dragged them down. Wooden beams anchored to the walls may help to hold those slender walls in place when all goes well, but they also serve to tear them from their places and to crumble them into ruin when there is a fire.

Since that time the test has been applied many times, and both wrought iron and cast iron have shown their power of resistance to heat to be greater than was anticipated. The same lesson seems now to have been learned in regard to steel. It is not the purpose of this paper to apply statistics at all; the general admission is that, while it is altogether advisable to protect the iron or steel of the framework in every possible way, by terra cotta, or the like, it is still evident that there remain large powers of resistance in the metal framework itself. So far as this goes, the skyscrapers may still be built twenty-five stories high without unreasonable risk.

There still remains the question, not very easy to answer: What is the utility of such resisting powers in the framework, if the building, apart from the framework, is so combustible as to be destroyed, within; or its costly outside to be hopelessly defaced, by a not very formidable conflagration?

It has been shown very recently that a small, old-fashioned building burning hotly by the side of a modern office building, or opposite to it across the street, may send such jets of flame to lick the windowed fronts of its neighbor that glass gives way, sash takes fire, wooden flooring as it is often laid leads the flames horizontally along it, dados and door trims blaze up, and the furniture in the room joins in the burning, until a new blast of flame is generated within the

building sufficient to rush furiously through open doors, and to beat down and sweep away those light partitions of wood and plate glass and to render nugatory those of light plaster blocks which separate offices. This is under the supposition that we are dealing with what is called a "fireproof building." It is commonly said, when the scoffer ridicules structures of this sort, and points out the immense amount of wood which is allowed within them, that this wood is so isolated piece from piece, and so fixed upon incombustible walls and floors that it may be counted out. It is evident that it will not take fire very readily; and from this the assumption is made that it will not burn at all, and is not to be feared. It is true, of course, that wooden flooring, if laid as it ought to be without air spaces and close against the solid bed of cement—that a wooden dado planted close against a brick wall, or with mortar filled in behind it, and connected with no other wood except the flooring and the window trims—that neither of these will burn readily. An accidental match thrown down before it is extinguished, a coal of fire snapping out of the grate, even a jet of flame from a gas fixture will fail to start a bad fire in the building. Window shades or light curtains may catch fire and burn up and such a room as we are imagining would be injured by smoke, but in no other way. Overheated or defective flues are not to be much feared in buildings of the modern type, because the flues are pretty sure not to be in close contact with anything that will burn. Granted all this, the possibility of a furious and very hot fire attacking the building from the outside has still to be reckoned with; and, if, as in a recent notable instance in New York, many of the above-named conditions of safety have been neglected, that attack may be nearly fatal to the structure. Against this danger there is nothing to be set up, except the substitution of that material which minds heat but little for those materials which cannot resist it for any length of time, together with the substitution inside the building of stuff that will not burn for that which will.

Let us then consider the thing in the abstract, and imagine ourselves for the moment public-spirited citizens, building for our own purposes but still public-spirited, having the spending of a deal of money in the "erection and completion," as the specifications say, of a big office building of the usual American type. That class of building is associated, at present, with more provision for fire-resistance than any other. Little as they deserve the name of being proof against fire, what has been done to make them so shows, well enough, what more may be done in the same direction.

Let us suppose that our building is to front on two of the narrower streets of that city; that is to say, that its windows will open upon a space from sixty to eighty feet in width to the opposite windows, rather than upon a great open square, or a street like Broad Street in New

York of quite unusual amplitude. As the building is to be high, it will probably rise above its immediate neighbors, and a few windows will be opened in the gable wall, helping to light the upper stories. The rear windows will look out upon an open yard of no great size which separates the building from its next neighbor in that direction; so that on the whole no window will be nearer than sixty feet to the opposite window, and none much more distant than that from such opposite window. Under these circumstances the very first question to settle will be: Shall there be iron shutters to the windows? In old times it was quite the rule to put up iron shutters in the front as well as in the rear of the simple buildings of the by-streets, and the fire department authorities used to object to these shutters until a fastening was introduced which could be opened easily from the exterior by a man on a ladder. Now they have pretty much disappeared from the fronts. The demand for a very large percentage of surface opened up in window space and filled with glass, has been the chief cause for the abandonment of these projections; and with this is to be counted the unmistakeable trend toward a certain elegance of aspect, in the courtyard wall as well as in the wall fronting on the street. Let anyone go into the Equitable Building, or the Mutual Life Insurance Company's building, or Aldrich Court, or the Metropolitan Life Insurance Company's building, in New York, and look out of the rear window upon the court surrounded everywhere with creamy white enamelled brick and treated with a good deal of elegance, and let him notice also how large a proportion of the masonry has been cut out for the sake of admitting light and how little there remains to receive shutters if thrown back against the wall. It will be hardly possible to force the builders of such buildings to add iron shutters of the usual hinged type. It will be felt that they disfigure the building too much, and also that there is no room for them, that they will be terribly in the way and can only be handled at all by means of some long iron hook or strip, some "blind adjuster" or "slide bar," which would hold them in a position nearly perpendicular to the face of the wall—which arrangement would be more disfiguring than any other. If, indeed, the piers could be so deep—or, in other words, if the wall screen where the windows are could be so deeply recessed—that the shutters could rest against the reveals or sides of these piers! This plan is impracticable, because such shutters, to be of any use in the way of protection against fire, must be in one fold or valve, so as to avoid the joint between two folds in the middle. Such shutters ought, indeed, to be received when closed in a large rebate, as shown in Fig. 1. In this manner alone can the joints between the shutter and the frame, or the sill, lintel and jamb, be made tolerably proof against the effects of heat which first warps the shutters and opens the joint, and then passes

through that joint to destroy what is within. The "Underwriters'" shutter of wood covered with tin is really better than any iron shutter can be; but for exterior look it is not more likely to commend itself to the building or renting public. And it is to be remembered that, where such shutters overhang adjoining property, its owner has a right to object to and remove them. On the whole, therefore, it is really useless to consider as a practical possibility such shutters as these. The only protective shutters which can be supposed available under the circumstances are sliding or rolling shutters of some pattern. With the first, that is to say with shutters which slide horizontally into pockets reserved for them in the wall or pier, the difficulty is that the protection required by law for the steel column which forms the main upright of the building is seriously interfered with. In the more usual construction of the piers of such a building as we have in hand no such groove or pocket as would be necessary for the shutters could be reserved, without endangering the whole structure. There is also the difficulty that everywhere the piers would have to be a little wider than the windows which they separate, and

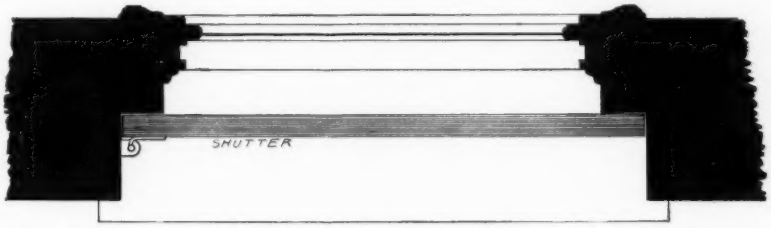


Fig. 1.—Tin-Covered Wooden Shutter, Hung in a Deep Rebate in the Outer Wall.

this is a serious difficulty. Granted that on the whole the total horizontal dimensions of the exterior wall in any story are divisible nearly equally between solids and openings, it still remains a serious hindrance to our design that we are compelled everywhere to couple a window with a pier a little wider than itself. It is not our possible artistic design alone that is affected. The required arrangement of windows in a given office may at any time be such that this disposition of sliding shutters will not succeed. Let us proceed to consider another one, namely, rolling shutters, such as are common in the fronts of shops opening directly on the street. The only difficulty with these is their cost. In other respects they are convenient enough. They are well out of the way when open and rolled up, and are easy to open and shut; moreover, they form an excellent protection against fire from the exterior, and in no respect more than in this, that they run in grooves and so make close connections with the jambs. In this respect they are superior to any hinged shutters now in use. They need no bolts nor catches; and there is no serious difficulty to the fire department in opening them

from the outside. The pocket in which is situated the roller is removed from the constructional piers of the building and is contained in the panel between each pair of windows, that is to say, it is above the head of each window in its turn. The cost, however, is very heavy indeed, and it is extremely unlikely that any legislature will pass and obtain the governor's consent to a bill making such shutters compulsory. For skylights, indeed, such shutters should be made compulsory, nor would it be a hardship to anybody to so protect his roof, which is likely to prove one of the most vulnerable parts of the building in the case of a fire in an adjoining building of the same or a greater height.

In the absence of shutters, then, what is the proper expedient? How is fire raging in an opposite or adjoining building to be kept out of the interior of our own building? There is the device of wire glass, by which a sheet of glass has in its very substance a system of netted wire work with meshes so large that they do not obstruct the light to any perceptible extent. Experiment seems to have proved that such glass will resist a very intense heat without giving away. It will be defaced and disfigured, and its transparent quality pretty much destroyed wherever a sheet of flame strikes it for a moment, but probably only in these exceptional cases. The mere radiant heat coming from even a very furious conflagration will hardly affect it so much as that, and the tendency of such heat to throw the lights of glass out of their frames by causing them to expand and break away from their setting may be disregarded in the case of this wire glass. The tenant of a handsome office, for which he pays a handsome rent, expects certainly clear glass through which to look into the street; but he may easily consent to having only the lower lights of his window of polished plate glass, so that two-thirds of the window space may be filled with the wire glass in question. If, then, such glass of the two kinds mentioned, the one above, the other below, be set in an iron sash swung on hinges or on a pivot in an iron frame, the arrangement will undoubtedly be found proof against almost every conceivable attack of the heat of a fire on the outside. For tenants who prefer the old-fashioned sash sliding in its own plane, new patents offer themselves—devices not yet wholly approved by use.

Now, it must be urged without further postponement of the crucial point, that wood needs to be absolutely excluded from the buildings of the future, except in the case of which there must be question in the next paragraph. Except in that case, wood should be prohibited by law, and should have been banished long ago by our architects, our contracting builders and our owners of property, all acting together in harmony. Nothing but the old traditions of the American house builder in favor of wood has kept that material in use so long for

what are called fireproof buildings. It is an anomaly, a monstrous piece of careless indifference, that even in so-called fireproof buildings there should still be wooden doors, wooden door trims, wooden window sash, wooden panelled backs, wooden dados and wooden flooring, together with all the outfit of furring strips, stops, grounds and loose mouldings which are needed to complete the job.

The case supposed in the last paragraph, in which wood may be kept in use in good buildings, is the possibility of making it completely and safely fireproof. It is hardly enough that it should not kindle easily and conduct flame readily; it must also be able to hold its inserted clear glass or wire glass in place without crumbling or wasting away before the flame, in suchwise as to leave to it an opening to do further mischief. We are told now, at the middle of the year 1899, of the perfect solution of the long-studied problem of how to make wood incombustible, and we are assured that the success attained is so great that the warships of Great Britain and the United States are to be supplied with it for their interior finishings. If, indeed, wood as used in house carpentry may come to be considered as no longer a combustible material, then the case is altered, and our window frames and sash might continue to be of that material as so modified, if architects were not so handicapped by the ever-accursed demand to make a cheap house look like a costly one! What architect dares try to call his employer's attention to the hideous danger which attends building in the old-fashioned way? What architect can afford to beg for the addition of twenty-five per cent to the amount of the carpenter's contract (that is to say, of six or eight per cent to the total cost), in order that his employer's family or his tenants may avoid the danger of sudden death by fire or by more merciful asphyxiation? The architect finds it already so very hard to get the needed appropriation for sufficient walls, solid foundations and enduring floors and roof that to ask for incombustible material besides would be —he feels and knows—to import into the already confused situation a new element of confusion. Still, the non-inflammable wood is there, it appears, for people who care to reduce to nothing the risk of being burned alive; and we have at all events, the right to assume that the glass of our windows will hereafter be set in frames which will not catch fire by heat applied externally.

There is now to be considered the exterior surface of the walls, its material and design. If we were satisfied to use brick, well and solidly laid up, and terra cotta, with every hollow filled with concrete made with broken brick and cement, with tile in its appropriate place, all would be well. We should have done what is possible, in the present state of civilization, to resist the attacks of fire from without, by the omission of the traditional ashlar, which so far from being fire-resisting, is commonly most readily affected by fire and water.

In the heat of a conflagration granite will crack, and at the points of projection and of salient angles, great pieces separate themselves from the mass; it will even crumble to an unrecognizable heap capable of being shoveled up. Sandstone is often safer than granite, and will bear a great deal of heat without losing more than a spall or a chip here and there. Limestone is the most treacherous of all; it is speedily reduced to powder, and this effect of the heat is enhanced and hastened by the stream of water from the fire engines. Artificial stone is commonly like sandstone, and often with more cohesion. A wall built solidly of plain blocks of it might do well under trial, but projecting, ornamental cornices and the like have little power of bearing heat and none of resisting, when in very heated condition, the impact of a stream of water. There still remains to be tried, in any serious way, the monolithic system of building by concrete, or its equivalent, cast in wooden molds, set up on the spot, and so taking shape for the first time in the mass of the wall in which it is to remain. There may be in this material unexpected safety for the future. One thing only we know which is really proof against fire, which we have the right to call in ordinary parlance proof against fire, and that is baked clay. Heat affects it only by sudden expansion; and sudden contraction when cold water strikes it; it seems that this may be disregarded. Brick and terra cotta are our standby, with tiles of different sorts and sizes for roof-covering and for wall-sheathing on occasion. Buildings exist which have been so conceived and so carried out. The most interesting and useful lesson for any beginner in the art of thinking for himself is to be found in the two fronts of the Union Trust Company. This building has a façade on Broadway which is faced with stone in the orthodox manner, and a façade on New street which is the exact counterpart of the Broadway front, except that it is carried out entirely in yellow brick. It is not now the question whether buildings of brick should have the same system of design as buildings faced with stone; it is notorious that the two materials may be so treated, or may be treated on quite other lines; the thing that is most interesting in the building named is the fact that two fronts, in other respects precisely equivalent, are realized in these two materials—the despised one and the admired and desired one.

The trouble with introducing any improvement in building in this direction is the queer superstitions about dignity and stateliness which possess the popular mind. And it must be observed that the popular mind is that of the millionaire property owner, or millionaire donor of buildings to public institutions, fully as much as it is the mind of the man who rents a small dwelling house. To an architect of rationalistic tendencies there is nothing more comical than to reflect upon the sayings of his clients with respect to the superior dignity of stone

as a facing of their walls, and the profound contempt of those same clients for brick. If, under the stress of the architect's personality and knowledge, the owner gives a half smiling assent to pleas for the value of brick work, the contempt underlies this assent, and is in full force again in another instant. The deed of gift to a college of land and money contains the absolute proviso that the building "shall be built of stone"; by which, of course, it is meant that its exterior shall have a stone veneer. The requirement of a church committee is that the exterior "shall be of granite," and this in spite of all persuasion and all warning on the part of the architect and on the part of the two or three members of the Board of Trustees who see things as they are and who point out that the more you spend on the exterior sheathing the less you have for the far more important work of the interior. The owner of property on an avenue, where stately shops abound, assumes the necessity of increasing the amount of his investment by a limestone front above the iron ground story; twenty years ago it was an iron front he built, and that, because each new tenant could have it painted up afresh and make the building look new: but that whim has passed. The wealthy builder of a huge office building assumes, in like manner, the necessity of a street front of stone, and that although for one street front there are three gable walls and courtyard walls, blank and staring in the nudity of plain brick work and square holes in it, towering high above the neighboring buildings and fully as visible as the wrought and elaborated street façade. Nor are there wanting architects against whom the charge can be brought of unreasonable worship of stone. When a firm has completed a paper design for a palladian façade, what can be more annoying than to have to reduce this to the ignominy of brick covered with stucco? Uncovered, unconcealed brick it can hardly be. No, it seems to be thought that the dignity of late classical formal designing is not to be served except in marble or light gray limestone.

Let the reader select the buildings which he likes best in New York, and he will find that all or nearly all of them could be perfectly well carried out in brick. What building is the most approved? Is it the City Hall, or Trinity Chapel, or the Clearing House, or the Metropolitan Club? Each of these is a building of which every feature could be perfectly well rendered in brick and terra cotta without loss of character or even important modification in detail. Is it the Madison Square Garden? That is already of brick and terra cotta, except the granite shafts of the arcade. Is it the Judson Memorial building, its church, campanile and apartment house? That also, exceptis excipiendis, is of brick and terra cotta. Is it the Union Trust Building? That, as has been said above, has one face of stone and the other of brick and no man can tell the two faces apart, in a photograph. Is it the Vanderbilt residence at Fifth avenue and

Fifty-second street, or the Gerry residence at Fifth avenue and Sixty-first street? These two houses, designed by the same artist in the same style, are interesting as subjects for comparison, for one of them is carried out entirely in limestone and the other is of brick with only the usual "trimmings" of stone. Indeed, the reader may hardly be aware how very much building has been done in New York, with baked clay for the whole, even the decorative part of the exterior, until he takes pencil and paper and makes for himself a list. He will find then that the attractive and spirited Goelet Building at Broadway and Twentieth street and the admirable Hotel Imperial, at Broadway and Thirty-second street, the Marquand residence at Madison avenue and Sixty-eighth street, the Union League Club—in a style now out of favor, but a most interesting and spirited design—the interesting house in Madison avenue at the corner of Thirty-ninth street, and many another mansion of size and style not far unlike that one, the imposing residence of Mr. Robb at Park avenue and Thirty-fifth street—and, in short, more important buildings than there is room to enumerate, or time to think of, are already brick buildings in every essential particular. It is therefore useless to argue the question in favor of using the material in part; even in large part: but a word should be said in favor of its exclusive use. The employment of stone in the buildings named above is generally so slight and of so little importance that a hot fire might destroy it all—every piece of stone visible in the outside of the building—crack it to pieces and reduce it to powder, and yet leave the walls standing and tolerably solid; but there is no reason in the world why even that much injury to the walls should not be spared—no reason in the world why terra cotta should not be used for sills, lintels, jamb-blocks, quoins, architraves, archivolts, coping, pilasters, string-courses, parapets and the rest just as much as for the body of the wall. Some of the buildings named above have large masses of stone—columns and entablatures of stone—used in their decorative design if not in their essential construction. That there is nothing to prevent the carrying out in terra cotta of these features, even these, is evident to those who know the resources of the existing American establishments, and, failing these, the facility of importation. There are several "plants" in this country the managers of which ask for nothing better than a much larger and more general employment of their resources than is now given them. As to their capacity of producing first-rate work and that on a large scale an examination of the buildings of the last five years will satisfy anyone; a glance at the Waldorf Hotel, built about five years ago, followed by the Astoria, recently completed, and a glance backward for twenty years at the Morse Building in Nassau street at the corner of Beekman will sufficiently inform the reader who has not thought much about the subject. The Morse Building repre-

sents the business building of the earlier "elevator period"; the two hotels, especially the enormous and striking mass of the Astoria, represent the newer steel-cage construction, and that applied to a great building of small sub-divisions, a vastly more trying plan and arrangement to carry out in any material than are the plan and arrangement of any office building conceivable.

Nor is it to be feared that a city built mainly of brick, and adorned with brick and terra cotta will be monotonous or ugly. If the people of our time were to brag, reversing the celebrated *mot* of Augustus, that they proposed to leave New York a brick-built town whereas they had found it mainly of marble and brownstone in its exterior aspect, they would be posing wisely. It is long since the writers upon the abstract question of modern architecture and its requirements first broached the theory of an architecture composed mainly of iron framework with exterior facing of colored tile. This was proposed as a remedy for the action upon exterior walls of the smoke-beclouded air of London; but also was it proposed as the most hopeful prospect for the comparatively sunny air of Northern France. Buildings have been built both in France and England exemplifying this scheme, and more especially in the temporary structures of the great Paris Expositions have designs been carried out according to independent and deliberate planning and building, on rational principles by architects of eminence. As yet but little has been done to carry out such designs in permanent form; but that is in the near future. It takes time for the designers, on their side and those who employ designers, on the other hand, to break loose from their early affiliations, and the same influence which keeps Americans wedded to their ideas of carpenter work, as the prime and essential feature in all buildings, makes them and all the world of European descent doubtful of the possibility of building except as their forefathers built in the seventeenth century. It is for that reason that one is inclined to welcome so heartily a great exterior like the Astoria Hotel, in New York, showing as it does to the most careless observer how great are the resources of modern decorative building in the only material fit for general employment in a modern city.

And yet here the enthusiast checks himself, recollecting that in a city of the Continent of Europe stone would not be banished as rigorously as the maker of an ideal building for New York or Chicago would banish it. It has been pointed out before, in these columns, that on the Continent, where fires of formidable extent are very uncommon, no such universal avoidance of a building material which may suffer from fire has ever been proposed. Even where the right of the community to regulate the actions of the individual is more unquestioned than here and where the "paternal" action of the government is carried far beyond what Americans think of as

possible, nobody has seriously proposed to banish stone, or wood either, from the general list of building materials. The constant recurrence of dangerous fires in America comes mainly of the custom of building the whole frame of our structures of wood; but partly also of our disposition to keep our houses very warm, a custom bringing with it a constant use of fires in the cellar and fires above stairs, hot flues and hot stovepipes and fires left burning throughout the night. The future will show whether those restrictions which are proposed in this article as really essential to our future tranquillity, need to be maintained in their full vigor. Let the city once be rebuilt with the use of wood not greater than that in, let us say, Paris, and it may be well that granite and sandstone and even limestone and marble may reappear in our exteriors as no longer greatly objectionable. For fifty years to come we shall have no such privilege. It is our business, now, to exclude from our buildings everything that can burn, even to the smallest pieces of the construction; and to bar out of our external street architecture every material that is not capable of standing a blaze.

An office building nowadays has nearly always a flat roof; and a high parapet wall usually surrounds this and conceals the paraphernalia of skylights, ventilators and the like, which break the roof and rise above it. This is an excellent step toward the completion of our fireproof exterior. It facilitates the protection of the building greatly to have a solid fire wall rising above its roof; and although this is not absolutely required by the law in fireproof structures, yet the openings toward the sky which the modern requirements of light, ventilation, and access make necessary, will find in such a fire wall their first line of defense, so to speak. The suggestion for exterior design which this parapet wall gives to the architect is confirmed and aided by another suggestion, namely, the inappropriateness to the place and the character of the building of a wall-cornice of great projection. There has been recently a controversy in Boston over the cornice projecting, perhaps six feet from the lofty wall of a new business building, and the objection urged against it was chiefly the shadow that it cast, and the darkening of the somewhat narrow street, together with the buildings opposite. This objection ought always to be urged; in every case where a broad spreading cornice is proposed in our narrow streets it ought to be fought by all the influence which the neighboring property owners can bring to bear. An overhanging cornice is an anomaly in our city buildings; worse economically in a low building than in a high one, but bad in all. It is worse in a high building in so far as the architectural effect goes, for nothing has been done yet to prove the possibility of putting a broad spreading wall-cornice upon a very lofty tower-like structure without making it look in a

ludicrous way like a broad-brimmed hat; that is to say, without its seeming awkward and out of place. What is wanted is, of course, the vertical and not the horizontal crowning of the structure. The battlemented parapets of so many buildings of the Middle Ages and those not military buildings exclusively; the balustered parapets upon cornices of slight projection during the neo-classic era, and now, the brick parapet-walls of such buildings as the Judge Building in Fifth avenue, the business building No. 55 Broadway, and

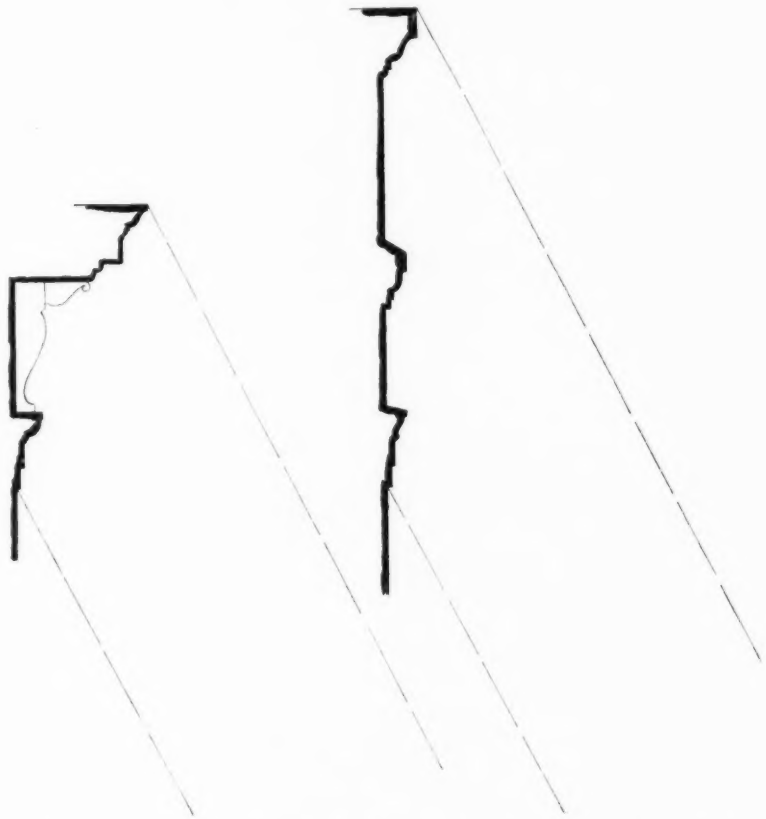


Fig. 2.—A Vertical Cornice-Member, 14 Feet High, Subtending the Same Angle as a Wall Cornice, 9 Feet High and of 4 Feet Projection.

many a great warehouse which has been treated in the large and massive way so common of late in New York—all these are witnesses to the vigorous effect which can be obtained by means of a vertical wall replacing the horizontal overhang. Fig. 2 is intended to show how the arc of vision subtended by the upper story plus the cornice and by the upper story plus the parapet may readily be the same. The inference is not far distant that very little thought and care in the decorative treatment of the vertical wall will

make it as effective as ever the overhanging cornice may have been in the past. The parapet wall need not be so elaborately pierced as to lose its protective value; it need not be so absolutely solid as to be less decorative in effect. In fact, the passing of the light of the sky through openings more or less elaborately shaped is an element of design which cannot be overlooked. It gives the most exquisite counterchange, as a herald might say, which it is possible to imagine, and we all of us felt that the great Surety Building in Broadway, corner of Pine street, had lost a great deal when the circular occuli in its parapet wall were closed up and the blue no longer showed through the sun-lit white.

A business building such as has been pictured above, with iron frames and sash, and wire-glass used as far as practicable; with or without iron shutters; having nothing but brick, terra cotta, ceramic tile and cement to form the exterior face of its wall; having, moreover, a flat roof with a high and somewhat massive parapet wall surrounding it—such a building would be little endangered by the heat of even a most furious conflagration, nor would it suffer, except only from the smoking, scorching, and such disfigurement. But let it be supposed that a jet of flame breaks through the windows in spite of their defensible character. This may always happen, and, therefore, the interior finish must be considered. The question is, therefore, what to substitute for wood in our American interiors, which have hitherto found their chief means of decoration in elaborate joiner's work. If, indeed, wood which has been treated by a chemical process shall prove actually incombustible, this interesting question disappears in an assurance that the old conditions will still prevail. That would be a great relief to the citizen proposing to build, and quite unable to adjust his mind to new conditions; but the student of the nobler class of work common in countries where carpentry and joinery do not leave their proper sphere and invade, so generally, the domain of the higher architecture, may almost regret the interposition into our slowly developing architectural world of wood which cannot be burned. The old requirement of the man who would build an incombustible edifice, the requirement that he should use the materials of the mason and worker in marble, had that of good about it that it required a nobler and more permanent style of decoration than anything which woodwork can ever lead to—at least in the hands of men of European race.

The tenant will have a planked floor. He is sure, in advance of all experiment, that nothing else will be agreeable to the feet. In like manner it seems useless to point out the easy working and the slight additional cost of iron window frames

and sash, and useless to bring up European, or the few existing American, examples. It seems useless to urge that doors might be made of something else than wood. Have not doors always been made of wood? Law might, indeed, be invoked in such cases, and law might relieve us of our difficulty, but Americans know pretty well what to expect of their legislatures, and they have not a profound belief in the possibility of carrying through and putting into enforcement a law which would be very disagreeable to many owners of real estate. The community suffers in silence. It, the community, does not take the trouble to buttonhole members of the legislature, or to appear before committees and to talk more publicly than that in behalf of its requirements; but the owner of property does both, and he does it vigorously and shrewdly. And yet, private money-interests cannot always hold public welfare as of no account, and we are forced to consider the possibility of carrying out every part of our interiors in materials which will not burn, and, in doing so, to study the ways of men who build in other lands than our own. In the South of France nobody feels obliged to hang his light wooden doors to wooden hanging-stiles, which form part of door-frames, themselves made of wood and involving the further use of stops, grounds, nailing strips, trim planted on after the plastering, and loose mouldings to complete the trim. Such work is eliminated from house building of Languedoc and Provence, Auvergne and Gascony by the simple process of building into the solid wall or partition of masonry the tongue, strap, or more solid block, to which is attached the wall piece of the hinge. In Italy, throughout the peninsula, similar ways of work are common and in all buildings in the towns wood is almost confined to the swinging doors and the swinging window sash themselves—the fixed frames being, if of wood at all, so very light and slight that they are hardly more formidable than an enlargement of the door itself by a few inches in any direction. Rooms too in these lands are vaulted; staircases are solid rooms or compartments, as many stories high as the stair ascends, with walls of masonry, and with no further connection with the rest of the house than by means of the comparatively small doorways. The floors of halls are commonly laid with slabs of stone, which may indeed rest upon wooden beams, but those always left visible from below and practically out of the way of fire. The floors of bedrooms, of sitting rooms, of eating rooms, of kitchens—of every separate "piece" indeed, except in a building especially prepared to tempt foreigners as possible lodgers, are floored with earthenware tiles, and these are set upon a thin coating of cement which rests in its turn upon planking, to be sure, but planking which is tolerably protected by the solid, air-tight and incombustible bed which it carries. In place of the earthenware

tiles, terrazzo of some kind is laid, a kind of cement flooring with chips and pebbles of marble or bright colored stones of any sort, not too hard and refractory, let into its surface, so that when the whole has been smoothed, rubbed down and polished a pleasing resemblance to mosaic is the result. No one who has lived for any time in an Italian city but remembers the nervousness which came over him when he first found the wall and floor of one of his rooms growing so hot that he could hardly put hands to it, with the fire in some furnace or stove below, and his feeling of relief when he found that the flue passed through a two-foot wall and behind a solid cradle-vault coming no nearer to anything which could burn than as a table might be set against or near the face of that heated wall. In Venice the houses are lighter and slighter than elsewhere in Italy and that for obvious reasons, and yet no one hears of a fire in Venice and this not merely because the people do not care to keep themselves as warm as we do, but also and to a still greater extent because of the comparative rarity of wood in the construction of the buildings and its complete exclusion from parts that are concealed, covered up and capable of spreading fire before it can be detected or prevented.

All of the above is of the simple, cheap, commonplace building which is traditional in those countries of Europe where wood is not, and has never been common. Those, too, are lands in which the usual rate of expense in the preparation and fitting of a house is as nothing compared to the extravagant proceedings of the United States. With us no immediate imitation of those easy-going, South-of-Europe ways can be looked for; but with us, again, the iron members of all sorts and sizes—the angle iron, the strap iron, the innumerable forms of rolled metal which may be used in connection with cement, terra cotta, brick and the like for floors and partitions have made our work easy to us if not exactly cheap. And there is this to console the owner of a building, which he finds will outrun his estimates in cost, that it will be immeasureably more solid, more durable and therefore very much more agreeable and more capable of elegant finish. Your marble worker will be greatly rejoiced, and will tell you *so*, when he finds that his ornamental tiling is to be laid upon a floor of iron beams with brick and cement filling, because it will do him credit, he thinks, and need fear nothing but the shock of direct injury from above. The building will be comparatively dust-proof, it will be comparatively soundproof and smellproof as well as fireproof, nor will the dwellers or the temporary occupants of the rooms in such a building suffer from the constant annoyances of the wooden shells in which nearly all of us are compelled to live. Repairs will become a "negligeable quantity" in that owner's future calculations. Plaster will not crack nor partitions shrink and settle;

doors will not bind on the saddles; rats will not gnaw through lead pipe—the occupants will live free of the vexatious visits of the patching workman.

Doors can be made of paper in one form or another, and so almost entirely incombustible. They may be made with light metal frames upon which leather is strained, and the leather if taken in the large sheets of horsehide which are now prepared as "American Russia" or the like, is not very expensive. They may be made in a similar way like the old-fashioned green baize doors with textile of almost any inflammable sort strained upon frames which it would not be difficult to construct of stout wire exactly as the skeletons of our stuffed sofas and arm-chairs are made. The insurance companies recommend doors of wood covered on all sides with tin-plate; and modified forms of these "Underwriters" doors are now made with panels (see Fig. 3), which, together with the rails and

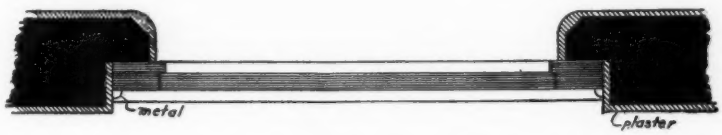


Fig. 3.—Panelled Door for Interiors, Hung Nearly as the Shutter, Fig. 1.

stiles are covered with metal secured by the usual loose mouldings, which alone are uncovered—even these mouldings might be of decorative metal and made very effective. It is found that these will bear a very great heat before yielding in the slightest degree; because, while the wood within may char, it does not burst into flame nor lose the whole of its rigidity. Doors may be made of wire glass, and these will not be unreasonably expensive when they are more constantly in demand.

If such doors be hinged by any simple process well known to all country masons, as of building into the masonry wall one-half of the hinge, the only question left will be the protection and the adornment of the door-casing. This then has to be considered, as well as the window-casing in connection with such windows as were described above when we are considering the exterior of the building in hand. The most effective way, the noblest way is certainly to build the door-casing and jambs with solid blocks of some stone hard enough to bear the ordinary accidents of inhabitation and dressed smooth enough not to be disagreeable as one's woolen garments brush it; or, in place of such stone, its equivalent in terra cotta, filled with concrete. Such a door-casing may be built as shown in Fig. 4, the quoins bonded firmly to the brick wall behind and having just so much projection beyond the face of the brick as to receive the thickness of a coat of plastering. This production may be increased to re-

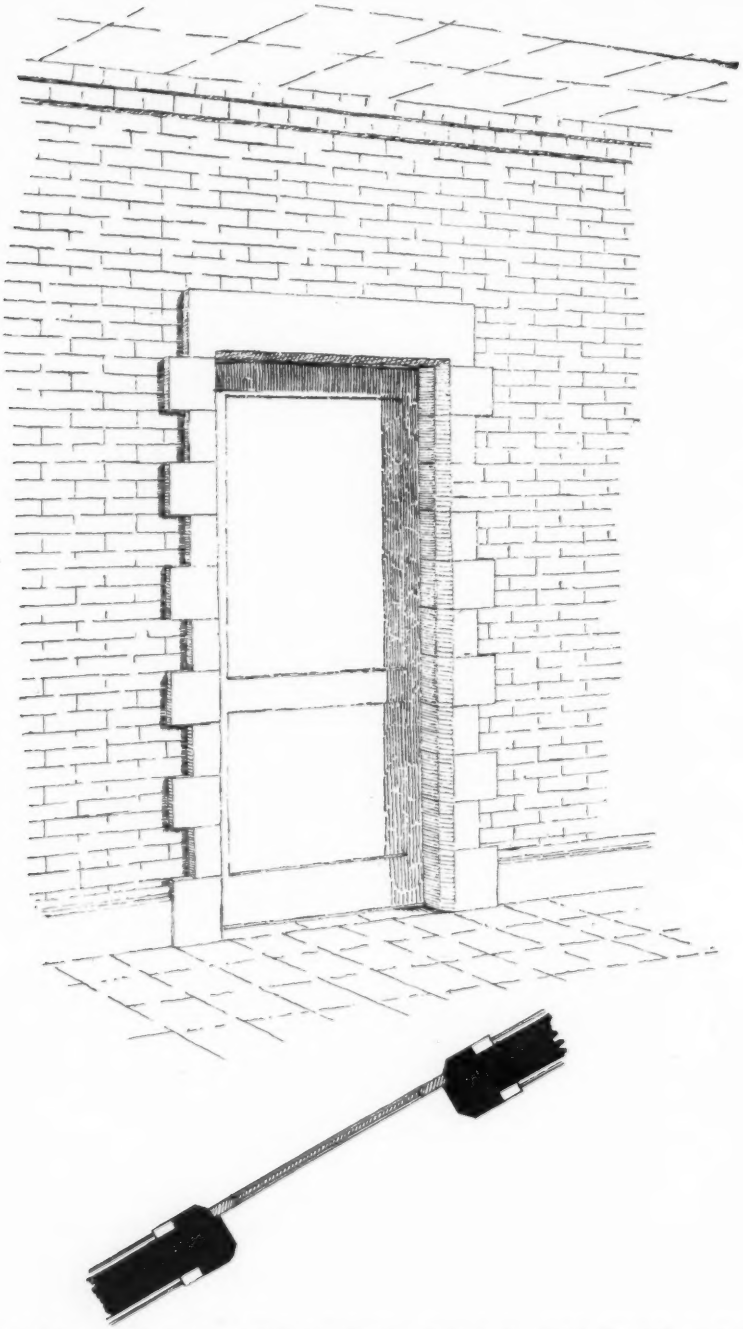


Fig. 4.—Door Casing of Cut Stone, Projecting Beyond the Brick Enough to Serve as Ground for Plastering.

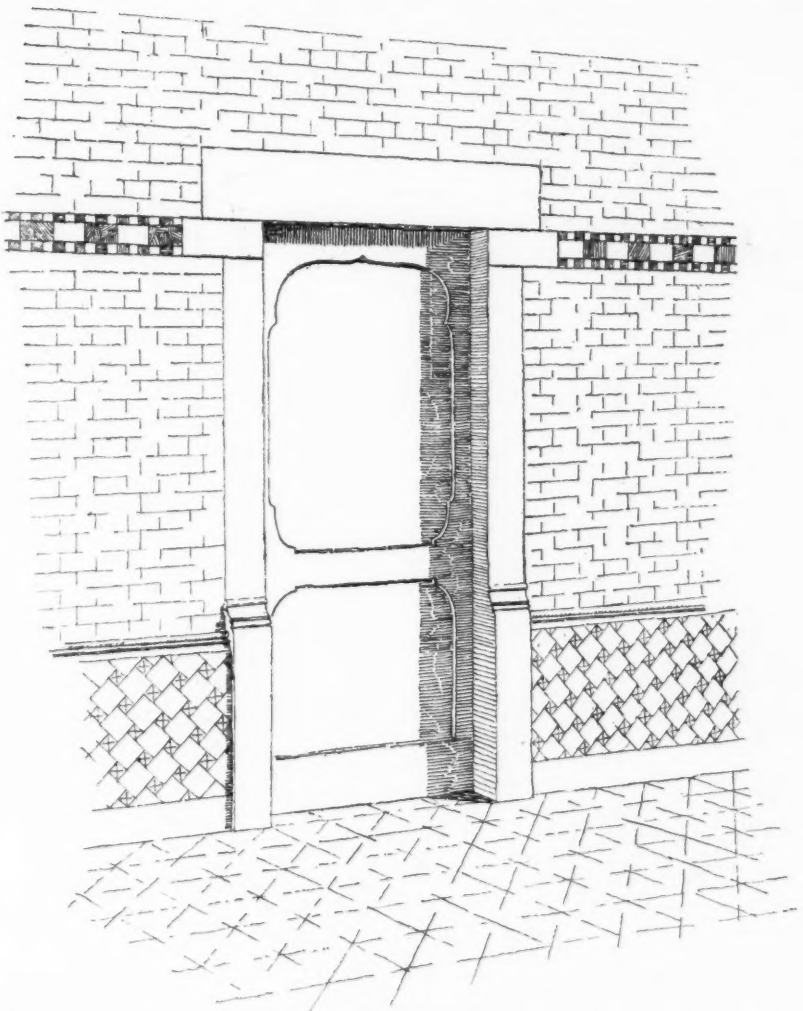


Fig. 5.—Door Casing of Cut Stone, Flush with the Brick Above, Projecting Below Enough to Serve as Stop for a Dado of Ceramic Tile.

ceive the thickness of a dado of marble, slate or tile, if, as is highly expedient, the brick wall itself be exposed and plaster be foregone. Fig. 5 shows such an arrangement; the jamb pieces and the lintel flush with the brick face of the wall, except where the uprights of stone are cut with projection enough to receive the added thickness of the dado. Fig. 6 shows a window with its surroundings treated in the same general way; but entirely in brick work and ceramic tiles. Or, the custom more frequently followed in the South of France is quite within our reach; there the thick walls are splayed at the door openings in such a way that the door is hung nearly at the ridge where the two splays

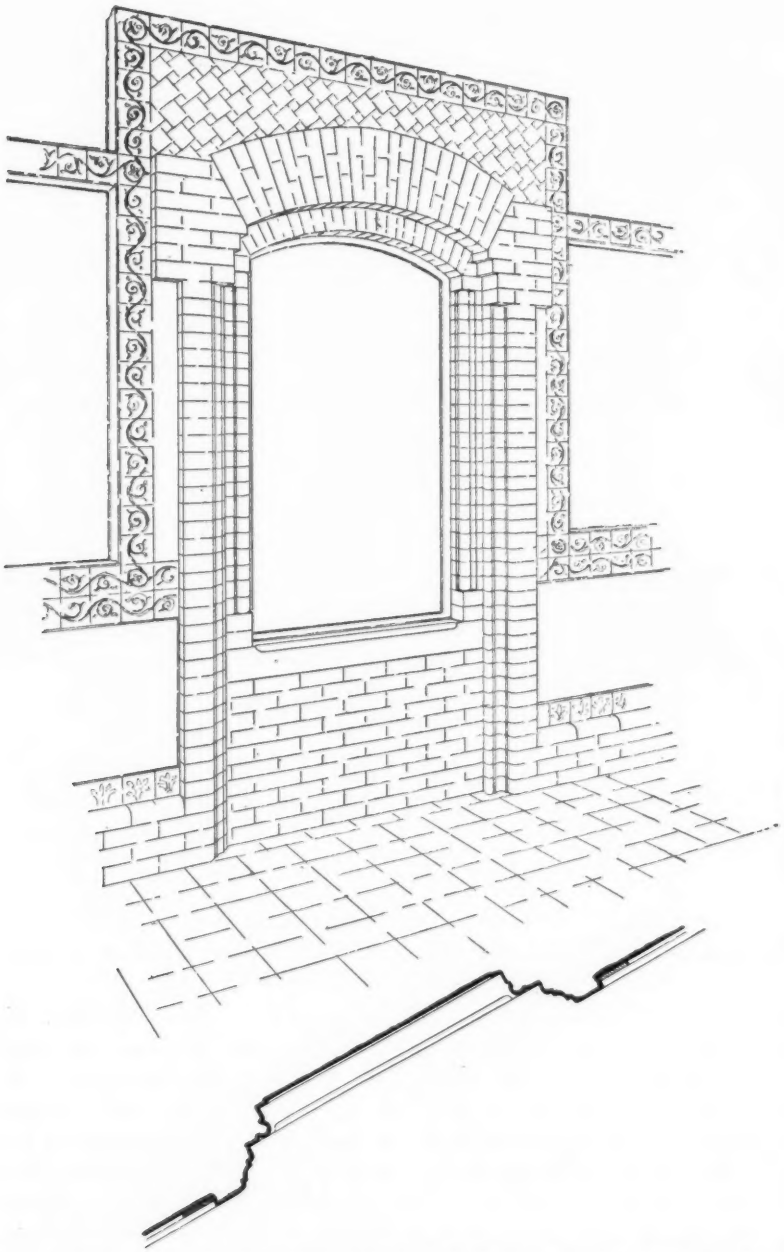


Fig. 6.—Window Casing, etc., Corresponding with Figs. 4 and 5, but Entirely in Brick and Ceramic Tile.

meet, and this door strikes upon a very small and slight trim which may even be of wood, but should by preference be of metal. It is to be observed that the door is not hinged into this light frame, which is merely a striker or buffer, something to keep the shock of the door from tending to disintegrate the rudely built masonry around. Where the walls are very thick, it is customary throughout South-western Europe to divide a doorway even of moderate width into two folds, one of them hinged to the jamb of either side; each fold being then so narrow that it can open into the thickness of the wall. This arrangement allows of portières on either side and is in other ways convenient, but it does not allow of the constant opening and shutting of the door because of the annoyance of fastening, with bolts or the like, the one valve against which the other is to shut. There remains indeed the device of spring hinges keeping each valve in the plane of the wall, but doors hung in that way are not very tight nor proof against the eaves-dropper. The one thing which is not to be allowed or thought of for a moment is the device sometimes followed where buildings in this country have been made fireproof and that is the copying of carpenter work in cast-iron. We

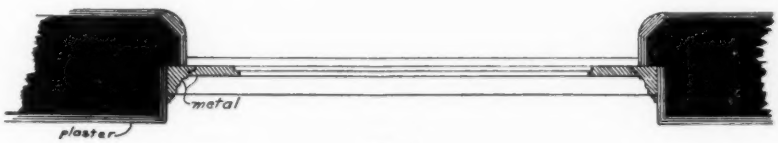


Fig. 7.

have all of us seen whole buildings in which a door trim of joinery has been closely imitated in painted and grained metal at great cost and with most unsatisfactory results. Barring that stupid resource all other modifications are open to us and it will not need many years of a determination to avoid woodwork to fill the market with devices for trimming openings and hanging doors and window-shutters, some of which may even allow of truly architectural treatment.

Already hinges of admirable general design are in use in one of the new stations of the Edison Company, in the Salvation Army Building in West 14th Street, and in many others, and used for hanging doors directly upon masonry jambs.

Fig. 7 shows a modification of such a door jamb, in which the plastering is applied directly to the wall of brick or porous terra cotta, or hollow blocks of any fireproof material; the door frame is of wood covered with tin, and metal mouldings are used to cover the joints. There is no opportunity here to complete the study of design possible to these or other possible doorways, nor of their co-relative and corresponding window-work: but it may be noted that the plastering is no part of the necessary finishing of the job—it is

merely a cheaper expedient. The uncovered brick is immeasureably more dignified.

The walls themselves of our office rooms will be more agreeable if laid up of hard bricks than people are apt to imagine who have not had experience of such walls. There are buildings in which the whole chimney-breast is faced with brick; and the mantel, elaborately carried out in terra cotta, forms one architectural mass with the breast. The bricks may have enameled surfaces; there is no difficulty about that, for, though the cost per thousand is high, so very few bricks are needed for the lining of a room that the actual outlay would not be great. It is not, however, at all essential, except from a somewhat fantastical belief in favor of the non-porous surface as being more healthful, that enameled or glazed bricks should be used; the selected hard baked brick of our markets is amply sufficient for all purposes and it can be got of many different tints allowing of pretty variety in the laying up of the wall face. Admirable instances of such work were to be seen in the old buildings of Columbia College—which are now falling in piles of rubbish. Friezes of moulded or patterned bricks, in the cornice at the top of the room or bands at the level of the chair-rail or elsewhere may also be made with excellent effect. This, however, is to be said, that brick is not agreeable to brush against—as indeed was suggested above with reference to sandstone used for door trims. To guard against this, dados of marble or slate are excellent and may be of any height from three feet six to seven feet or higher. Nor should the abundant supply of natural and artificial decorated marble with the grave and sedate colors of slate to contrast with it or to substitute for it, cause us to forget the ready device of ceramic tiles. There is no room here to dwell upon the brilliancy of effect so easy to produce by this means. The very ugly tiles commonly offered us are not to be allowed to blind us for a moment to the beauty of a few of those already in the market nor to the extreme ease with which the most beautiful patterns that can be invented by man may be transferred, either in color or in low relief to the surface of tiles which need not be costly beyond our means. Tile can be painted as canvas or panel can be painted at any price up to the fee asked by a master of the masters in sculpture or in painting; but, also, tiles of such beauty that we buy them for our museums and such as have been for centuries made throughout half the world may be studied, and the resulting studies sold at such prices that every house-builder might enrich his dwelling with them.

Where the wall surface is smoother, whether from use of enamelled bricks, of tiles, or of plastering of a superior quality, the familiar old baseboards may still be copied in a better material: or the dado, three or four feet high, may be made inexpensively. Fireproofing

companies there are which undertake to run mouldings and to execute panellings in many kinds of hard cement and plaster; and metal mouldings are at hand for the reinforcement of these, the protection of their arrises, and for their adornment. There are, too, a multiplicity of patent contrivances in the way of papier maché and similar compositions. And it is to be noted that, once the true uses of color-decoration understood, these inexpensive devices are not unworthy. The architect of spirit may well despise pilasters and entablatures of stucco; but color-effects may be got upon a plaster or a paper background as well as in ceramic ware and in marble.

As for the floor surface, there is no remedy for the whim that none but that of planks is agreeable, except the simple expedient of living where no plank floors are to be had. When one has spent two successive winters—that is to say, all of two years except the summer vacation—in an apartment of twenty pieces, unconscious of the fact that not a square foot of plank flooring existed, and then finds, to his surprise, that underneath the carpets and the rugs there is everywhere mosaic, terrazzo, earthen tile or cement, and this in an apartment near the top of a big house, an apartment of comparatively low ceilings and undignified appearance; then he makes progress in the knowledge of interior fittings. Such progress as that is what this article pleads for. The desideratum is that the occupants of offices, like the occupants of dwellings, should think for themselves a little more freely than they are apt to do in this country, cut off by such breadths of sea, of language and of custom from the nations of older tradition and frequently wiser habits of life. We cannot learn so much from England in this matter, except in the matter of inexpensive and beautiful stairs of white stone, with which stairs all dwellings of any pretensions are fitted, in London; but the Continent of Europe contains endless stores of suggestion for those who would build better than we are in the habit of building, and these suggestions, worked up by the American readiness at taking a hint when there seems to be an inducement, will give us all that we need in the way of incombustible appliances. Nor should the owner of a new and costly office building be satisfied unless his architect can say to him, when the last workman leaves the building, There is not in the building itself, its walls, floors or fittings of all sorts, as much wood as would make a lead pencil! That is the standard which, in spite of the assurances of a wood which will not burn, each owner and architect should set up for himself. They will assuredly have more beautiful buildings if they work in this way: and that fact is hereby offered as an additional inducement to those who would fain have buildings that will not burn.

Russell Sturgis.

EXPRESSION IN ARCHITECTURE.

ALL who are interested in architectural practice, either directly or indirectly, are familiar with a doctrine, which has much currency in our day, that buildings must express their purpose, and their structural qualities in their design, if they are to be looked upon as works of architecture. Not a few readers, indeed, who have been influenced perchance by Ruskin's fascinating writings, may have come to look upon this dogma as a recognized cardinal principle of the Art of Architecture.

But if one has thus accepted this dogma, and in connection therewith has taken the trouble to study with care the work of contemporaneous builders, he can scarcely have avoided the somewhat depressing conclusion that architecture is for us a lost art. Indeed, one may go much further than this; for a student who has followed with critical bent the historical development of what is usually called architecture in the past, and who has at the same time kept this dogma always in mind, must surely have found himself forced to the position, which is apparently held by some of our most prominent architectural critics, that architecture ceased to exist at least 3,000 years B. C., and long before any buildings were constructed of which any examples are now extant.

It is apparent from the words above written that the validity of the dogma above referred to is to be questioned in what follows. Nevertheless the reader must not look for an argument to prove it utterly valueless, rather will he find reason, after all is said, to trust to it in a way, as the architect will find reason to work by it; but this not because the dogma will appear in the end to be true in itself, but because it will be seen to veil a real truth. What this real truth is we will consider briefly at the start, that we may be the better prepared to speak of special examples later on.

We most easily grasp the truth which is back of, and veiled by, this dogma if we first come to realize that it is only a special adaptation of what has long been held to be a general æsthetic principle. It is but an interpretation of the general dogma of artistic realism in terms of the art of which we speak specially in this article, and to this general dogma of realism we may well direct our attention for a moment, before considering its special architectural adaptation.

This general dogma of realism may be stated thus: "Fine art is the expression of the true essence, of the real nature, of the subject presented by the artist." This is a dogma with which we are all made reasonably familiar by the teachings of the literary realists of the day,

of writers like Zola for instance, and our own Howells; and it is a dogma that is comparatively easy to uphold, so long as we forget, what we should never forget, that literature is only one form of artistic expression coördinate with sculpture, painting, music, and architecture. But when we are asked to broaden the application of the dogma to all the arts we at once see that it cannot be upheld in its original form; that it must be qualified, or limited, or restated, if it is to appear in any way applicable to all the fine arts.

It very obviously does not apply to modern music, for instance, without such qualification and restatement; and if we but think of it we find that the same is true in all the arts, to no two of which can this principle be applied with exactly the same significance. As we have already noted, the doctrine we are discussing is but a restatement of this general dogma of realism to make it applicable to architecture, which we are specially considering in this article.

In order to make the supposititious principle thus applicable to the work of the artist-architect it has been assumed by its defenders that the true essence of architecture lies in its constructional and practical worth, and that true architecture, therefore, consists: 1st, in the expression, in building, of constructional values; and, 2d, in the suggestion, upon the exterior, of the uses which the hidden interior portions of buildings, as wholes, or in their special parts, are intended to subserve. But it is easy to show that both of these assumptions are entirely unwarranted.

To consider first the expression of structure. There can be no doubt of course that there is great æsthetic value in certain expressions of constructional function in the design of a building; but to claim that the expression of constructional function is *per se* necessarily æsthetic is certainly impossible; for were this true all scientific engineering would have architectural value, which manifestly is not the case. Think, for instance, of the ugliness of the ordinary cantilever bridge in which constructional function is most clearly expressed. It is evident in fact without argument that works of engineering must thrill us with their beauty if they are to lay claim to the possession of architectural values.

We have on the grounds of one of our most important colleges a building erected by a skillful architect who has long since retired from practice—but who some time ago told the writer with expressions of regret that he designed it when he was carried away by the influences of Ruskin's teachings, "and I defy you," he said, "to find a single illogical thing about it. Yet I must confess that it is not beautiful."

If we consider the second assumption of the architectural realist,—the assumption that the suggestion of the interior uses of a building

in the design of its exterior is of the essence of good architecture, we find it equally unsatisfactory.

It is true indeed that certain indications in the design of the façades of a building which lead one to appreciate the purposes for which the interior is to be used give satisfaction to the beholder, a satisfaction which often adds much to the æsthetic value of the whole mass; but to hold that the indication upon the exterior of the purposes for which the parts of a building are to be used is necessarily æsthetic is manifestly absurd; for such a principle in an ideal building, would require the architect to indicate by appropriate forms or decorations the existence of menial offices which we not only wish to forget, but which we actually must necessarily lose sight of, if we are to enjoy the beauty of a building as a whole. Suppose, for instance, that we felt ourselves called upon to emphasize the kitchens and sculleries of our large mansions, say by decorating the windows with representations of pots and pans, as we use book plates sometimes in the decorative leaded glass in our library windows.

It becomes evident then that while the uses of a building, or of its parts, may be expressed in the forms employed in the design, nevertheless this expression must be beautiful if it is to add to the æsthetic character of the structure. It is apparent that we have discovered no "royal road" to the attainment of beauty in architecture when we have grasped the realistic dogma we are now studying.

And if we examine the general dogma of realism of which this architectural dogma is an adaptation we at once see that it itself is utterly inadequate as a guide to the artist in any field; for it is very easy to show that, far from being given up to the expression of truth, all of the arts are deliberately concerned with, and are based upon the adoption of, conventions that are *per se* inherently untrue.

No art attempts what can, by any stretch of terms, be called a complete expression of truthfulness. In all the arts we find the artist working on the basis of conventionalized falsities; and this is true even in those arts which so clearly deal with realities that they are commonly designated as the imitative arts.

For instance, in sculpture, which is perhaps the most clearly imitative of all the arts, we find the artist expressing his genius by presenting to us beauty of form in all cases, whatever else he does, and in most cases he pictures for us living forms. But note that for this purpose he uses lifeless material; and that, in order to emphasize the beauty of form, he deliberately avoids expression of movement and color; and in this he assumes unreal conventions. And mark how firmly this convention of unrealty has been fastened upon us. Lessing, the reader will remember, makes it a canon of the criticism of sculpture that movement must not be portrayed. And as to color, if

any one will take the trouble to speak of this subject with the greatest of sculptors, and the best informed, and most thoughtful of other artists, he will find how deeply rooted is the objection they have to colored sculpture. It is true that some of the best sculptors have, from time to time, attempted to use color in their works, but the coloring has seldom been realistic, and where the sculptor has reached any measure of success in such attempts it has been by adding to his work delicacy and charm rather than that special nobility of beauty which can be impressed upon us by sculpture as by no other art.

The painter goes even further than the sculptor in the direction we are considering by assuming as a necessary convention of his art an added falsity. Form he depicts as does the sculptor, and perspective and even movement, but all "in the flat," upon plane surfaces; and as the sculptor artist in general objects to the use of color in his work, so the painter artist would look upon the painter who might model up his work before applying his brush as something of a trickster; although, mark you, in this modelling the so-called trickster would in fact be assuming less of falsity than the one who works in what we feel to be the legitimate field of the painter's art.

The mural painter has a special convention of his own which demands that the feeling of the flatness of the constructional surface, of its attachment to the wall itself as part and parcel of the building, must never be lost through all his work.

The painter of whom we have been speaking gains his effects by assuming many untruths, and endeavoring to reproduce merely true relations between color masses; but the painter in monochrome, and the draughtsman in black and white, assume still another falsity, and deal merely with relations of mass, and values of light, eliminating all color. Some artists in fact have been most successful in expressing these relations of mass and light value by the deliberate use of color which is impossible to the Nature they are interpreting.

Recall, for instance, the marvellous effects Turner obtained in his water colors in this way. We may differ in our estimate of Turner if we judge him from his work in oil; but no one can deny his great genius who has studied the large number of his water colors gathered together in the National Gallery in London.

But beyond the unrealities in the art of painting thus far mentioned, note furthermore that the highest "key,"—(if we may use the slang of the studio),—that the highest "key" at our command for use on canvas or wall surface is most untrue to nature's "key." Furthermore, size and scale are also both deliberately falsified by the painter and draughtsman.

Perhaps the point we have been considering is made by reference to these two arts alone, but it may be well to go further and mention a few of the unreal conventions assumed by artists in other fields.

The dramatist deliberately assumes unreality of entourage, and untruth in all but the main suggestive relations of active expression. In connection with the development of the earliest drama men have discovered that the repeated story, the written word, will to a great extent produce the full effect of dramatic action, and they have thus again reduced the truthfulness of expression by describing action, instead of acting themselves. The poets have gone still further and have added other conventional unrealities, viz.: those of rhyme and rhythm. We have thus in poetry no real expressions of real activity; in their place we have mere verbal symbols which lead us to imagine or recall activities.

Finally, we have the extreme of falsification by the artist-writer, who, like Stevenson at times, or like Carroll in his "Alice in Wonderland," deals with altogether imaginary lives of imaginary people. Yet this art of literature, which assumes such a wide range of untruth in its technique, is the form of art in which those express themselves who speak loudest to-day in favor of realistic dogma.

Perhaps the strongest corroboration of this argument is furnished by the art of music, as it has developed in modern times; for in music the absence of realism is very marked, while, on the other hand, the musician is dominated by, some indeed will say overburdened by, artificial and unreal conventions of many kinds.

And if we turn to architecture, with which we are most concerned in this article, we find the same characteristics emphasized in a very distinct way; these characteristics, however, need not be dwelt upon at length just here, for in the course of what follows they will be referred to very fully.

At the moment it will be well to mark one conclusion to which we are forced. It is impossible to believe that all the assumptions of unrealities above referred to are irrational; we cannot agree that these unrealities are forced upon man, and that the great artist is ever endeavoring to express truth in and through these unrealities that press him down, as must be the case if the realist is correct. Rather, on the contrary, must we agree that these unrealities have been deliberately assumed by man in the course of his æsthetic development; and this becomes clearer when we discover that this assumption of unrealities by the artist is easily explicable.

The first artists were those who tried to produce beautiful objects which they could contemplate whenever they so desired, that is they had perceived beauty in nature, had mourned its evanescence, and sought in some way to make it permanent. Naturally they attempted to gain this end at first by imitating the beautiful and admired object. But presently they discovered that they were able to make their work more thoroughly

beautiful if they assumed certain unrealities in order to enable them to emphasize certain qualities which were necessary to the beauty for which they were in search. And as a matter of fact we find when we come to consider it, that unconsciously they have always assumed these unrealities in some measure.

The artist always does his best when he produces, by the use of any special material or method, effects which cannot be as well, or as economically, produced by any other technique; and this fact forces the artist, who uses any special medium, to emphasize the qualities which this medium enables him to present most effectively, at the expense of others which cannot be so effectively treated; these latter are thus thrown into the background, to the loss of their realty, but to the great gain of æsthetic result.

It is because we accept this principle, though usually unconsciously, that we object, as most of us do, to colored sculpture; for mere color effects can better be produced by the painter than by the sculptor, while beauty of pure form can be better presented in sculpture than upon the painter's canvas. For the same reason critical people have come naturally to object if they find the water colorist using solid, opaque color, as though oil pigment were his medium. They do not object, mark you, because this misuse of material opposes a principle which they have gained by generalization, for few, indeed, are the critics of art who know anything about general æsthetic principles: they object because they have adopted a convention of unreality which makes such technique illegitimate, and they have adopted this convention because they have learned that transparent washes of water color laid upon light reflecting paper enable the artist to produce beauties of relations of light which solid non-transparent oil pigments can never give.

For the same reason again do the musical critics object to "programme music." Why they object they can perhaps not tell you, but it is surely because they appreciate that for the artist who would express himself in this direction literature furnishes a better medium than music does; while the conventions of literature, if applied to music, limit its flow and development in a most unfortunate manner. They realize that reality should be sacrificed, if special beauty is attainable by the sacrifice.

It is thus that we can account for the persistence of the conventions of which we have been speaking, and their existence forever discredits the dogmatism of the realist by showing that thoroughgoing truth is not necessary to the highest forms of beauty, and that the expression of truth and the production of art work are in no sense coördinate.

It may be taken for granted then that the current doctrine of realism is not a sound one; and yet some reader may say to himself as he reads: "It is remarkable that this doctrine of the realist is so very persistent, if there is so little in it; may there not be, nay surely there must be, some basis for the doctrine if it has kept alive, as it has, ever since Aristotle's philosophic ancestors began the discussion of Æsthetics." This objection, indeed, seems to be well taken; but it is not difficult to explain the reason this discredited doctrine keeps everlastingly bobbing up, and in stating this reason we shall indeed find the truth at the base of this supposititious principle of the realist.

We men and women are persistently bad logicians, and when we find that an argument serves us well on the whole we take it for granted that it is valid. We discover that non-X gives us Y, and from that we very commonly draw the illegitimate conclusion that X will give us the opposite of Y.

We say clear sky, no rain; and then not clear skies; that is, cloudy skies, therefore rain. Now this conclusion is not a valid one, and as a matter of fact we know it does not always rain when it is cloudy; nevertheless for practical purposes, the argument serves us very well, for it so often does rain when it is cloudy that most of us go without our umbrellas if it is clear, and take them if it is cloudy; and we should consider ourselves incapable of judging from experience if we did not do so.

It is in accordance with this bad logical habit of ours that we take certain experiences which give us a sense of ugliness, and argue that if we could gain opposite experiences we should gain beauty, which is the contrary of ugliness; but this surely is an entirely illegitimate conclusion.

Men note, for instance, that objects in nature which depart widely from her types are ugly—the monsters of one kind or another; and they, therefore, say "follow nature's types," or "imitate nature," and you will produce beauty. But what right have they to make this statement. It is true, indeed, that we shall not produce ugliness if we follow nature's types; but no arguments from such premises ought to lead us to expect to gain the opposite of ugliness, i. e., beauty, by picturing nature's types; all we can be sure to gain by this means is the absence of ugliness.

Or to take another instance: certain students of Æsthetics have noted that inharmonious relations of color, or form, or tone, are ugly, and they have argued that if we produce harmony we shall gain beauty, and these theorists have raised the doctrine of harmony to the dignity of a basic principle in æsthetics. But a proper argument will surely lead to no such conclusion. All that we can certainly expect if we avoid discord is a lack of ugliness, not necessarily an acquisition of beauty.

Now it is in this same manner that the realists reason. Having noted that unreality, untruth, are essentially disagreeable and hence ugly, they argue that if we gain the opposite of unreality and untruth, that is, if we gain impressions of reality and truth, we shall have obtained beauty, which is the opposite of ugliness. Upon this fallacy is their theory based.

But here again we find the invalidity of the conclusion. If we avoid untruth we shall in fact avoid so much of ugliness as was determined by this untruth, but by no means is it a fact that we shall gain an impression of beauty.

The correct doctrine for us to inculcate then is not the realist's dogma: "Strive to express Truth," but a much more modest doctrine, viz.: "If you would produce Beauty begin by avoiding untruth."

And now if we apply what we have been saying to the art of architecture we find that we have in this principle of truth, of sincerity, of veracity, as applied to the art of architecture, but a half truth; as indeed we have seen that the doctrine of artistic realism in all its modifications expresses but a half truth.

In architecture, as in all the arts, untruth, insincerity, lack of veracity, and pretence, are in general disturbing, unpleasant, and therefore ugly; if a work of architecture, therefore, is to have permanent æsthetic value it must avoid the expression of untruth and pretence.

Now the easiest way for the lazy thinker to manage to avoid this expression of untruth and pretence is to bear in mind, and to some extent to express, the truth. But this mere expression of truth will never make a work of man's hand æsthetic: the æsthetic quality is something which must be superadded.

The aim of every artist should be to produce an object of permanent beauty, in whatever material he expresses his conception: this he cannot well do if he shocks the observer in any way whatever, and one of the worst of shocks is that of unreality. If the artist be an architect, he cannot succeed in producing the effect of permanent beauty in his buildings if he persistently lies about the construction he adopts, or if he constantly deceives us about the uses of the apartments he erects: but this is due not to the fact that where he succeeds in producing an æsthetic result the truth is expressed, but to the fact that lying and deception are in themselves anti-æsthetic. For mere sincerity, and lack of pretence, in one's architectural work will not make it artistic; to this negative lack of deceit must be added the positive quality of beauty which brings to the masses of cultivated beholders a permanent feeling of pleasure.

It cannot be denied that the architectural student gains a certain practical value from the emphasis of the dogma of truth: wherein this value lies becomes clearer if we take a familiar analogy from our

ethical life. It is more effective to teach the child the importance of speaking the truth than it is to correct him for falsehood. Nevertheless in Ethics we practically try to keep in mind general ethical ends, and often quite properly avoid blurting out perfectly certain truths when they are unimportant and inopportune. Correspondingly in Æsthetics, it is easier to emphasize its value of truth than the necessity of avoiding insincerity; nevertheless, it is perfectly legitimate, and often most advantageous, in architecture to avoid emphasizing some special structural truth, some uses of parts of buildings, provided this emphasis would involve the production of forms that are distinctly ugly; and this we do quite properly, as we easily see if we constantly bear in mind that the end for each and every artist, and for the architect as an artist, is the production of a work of beauty.

We have thus far been treating almost altogether of theory, but if the position we have thus taken be correct then the architect, in the guidance of his artistic efforts, may well make certain practical applications of the principles involved, negative though they be; and the reader as a helpful and appreciative critic may well take them to heart as guiding principles in judging of the architect's efforts to attain beauty in the buildings which he erects. There are just two results of our study which there is space here to bring into prominence, and both of these, the reader will find, bear directly upon the subject we have undertaken to consider in this article.

In the first place the architect is taught that he should aim to avoid the pretence of constructional effects which evidently cannot exist; but having done this he must equally avoid the expression of constructional effects which are not beautiful. It may be true, if we may take an analogy from a kindred art by way of illustration, that the human frame is made up of bone and muscle, and the artist-sculptor will certainly not model his figure so that it will appear to be apparently unanatomical—unconstructional, so to speak; nevertheless the most perfect reproduction of anatomical detail will not make a statue beautiful, nor should we consider the sculptor to be in any sense an artist who on principle represented his human subjects as exceptionally thin in order to emphasize the position of bone and muscle which make their attitudes possible. Similarly is it true that buildings could not stand did there not exist certain balancing of forces, certain strain on material parts, certain lines of thrust and pressure; but evidently to strip a building of all beauty in order to express this balancing of strain, and thrusts, and pressures, would be manifestly absurd from an artistic standpoint, and this point critics should not fail to bear in mind; for the critic who so emphasizes the delight he obtains in the architect's expression of these physical forces, that he finds in such expression alone the true essence of archi-

tecture, is as abnormally warped in his æsthetic development as is the surgeon who finds beauty in a skeleton, or in a fine piece of dissection, or in a skillful preparation of cancerous tissue.

The architect should aim in all cases to produce a beautiful building; to this end he must avoid obvious constructional untruth which for most intelligent men is ugly. So far as in him lies he should also aim to emphasize the constructional and practical values of the parts of his structure, and he should do this for the simple reason that such emphasis tends to be attractive to the intelligent observer. But he should never emphasize these constructional and practical values at the expense of a loss of beauty; nor need he strive for this emphasis unless it is possible to gain it in a manner which will actually add to the permanent æsthetic value of the building as a whole.

But as the architect should avoid giving the observer the shock which constructional untruth entails, so also should he avoid shocks of all sorts and kinds, for such shocks always involve more or less of ugliness.

And here again appears the value of this negative principle of which we are speaking; for not infrequently the architect finds in practice that by the adoption of some scheme which involves a minor inconsistency of construction he may avoid other shocks of much greater importance; for instance, shocks caused by bad proportion, or lack of symmetry.

Suppose the architect has built a large fireproof hall, across the ceiling of which a heavy girder must cross, dividing the ceiling into unsymmetrical parts. Here he has an ugly ceiling. He may remove this ugliness by furring down the ceiling to the bottom of the girder, so that he may obtain a perfectly flat ceiling of symmetrical form. No one will contend that this is improper, because in order to avoid leaving an ugly ceiling he has masked the ugly girder. But this arrangement compels the architect to lower the whole height of his room, and this may be disadvantageous. Now if this girder is exposed it must be protected against fire by hanging down over it a covering of terra cotta blocks, which are plastered over for further protection. This leaves the ceiling of a very ugly form. There seems no reason why he should not hang down other sets of terra cotta blocks, which do not cover girders, in order to make the ceiling symmetrical, if he is thus able to make a beautiful ceiling instead of an ugly one. This, indeed, will involve a minor inconsistency of construction, which usually nobody but the workmen and architect know of, but, on the other hand, it enables him to avoid a very important shock which would be caused by the lack of symmetry in the ceiling, and gives him an opportunity for decorative treatment of this ceiling which he could not otherwise obtain.

The ideal architect to be sure would, of course, be able to avoid all

shocks of all kinds; but we poor human beings all too often find ourselves called upon to make a choice of the lesser evil; and surely the architect who is merely human should not be condemned if he asks us to overlook some inconsiderable untruth of structure, or use, for the sake of the better æsthetic results he may thus obtain. He may well argue that at best we can express but partial truth in any art; the truths which the most thoroughgoing realist is wont to emphasize are only some of many which he chooses to consider, whilst he leaves out of sight many others which but for mere convention might as well be considered as those which he aims to express. The sculptor, for instance, in general, as we have seen, assumes a conventional falsity of colorlessness which he asks us to overlook in order that he may the better express certain beauties that are independent of color. So in architecture there are many other truths than those of structural thrust and strain, or of practical use, which all artistic architects (and even those who labor strenuously to express constructional values) have come to overlook entirely, and this with perfect propriety in consideration of the fact that the end in view is the production of beauty; e. g., they overlook the expression of the nature of their foundations, of the filling in behind their finished protective and ornamental stone facings, of the masonry and furrings back of their plastered interior wall surfaces. If, then, in the effort to build beautiful buildings, it is permissible for the architect to forget some of many realities, why should he not occasionally ask us to pass over some slight structural disingenuousness, provided he is able by such means to produce a nobler type of beauty than were possible if he did not disregard this minor inconsistency.

Architecture more than all the other arts is replete with forced compromises. A symmetrical exterior, for instance, may produce æsthetic results which could not be gained were all the minor lack of symmetries in plan emphasized upon the exterior. The artist must trust to his genius to determine for him how far he can afford to sacrifice one element of beauty in his effort to gain another; and the fact that he is an artist is attested by the fact that the structural truths he fails to express are forgotten by the observer in the beauty of the results attained.

Let us now consider a second application of the theoretical study which we made in the beginning.

We have inherited from a long line of our artist ancestors many architectural forms of great beauty which have arisen in constructional usage, all too often very faulty from our modern scientific standpoint. Thus it happens that inherited architectural forms, more or less illogical, have been refined and beautified until they have become in themselves æsthetic elements capable of employment for the

purpose of adding artistic quality to buildings, much as the artist in color adds to the value of his painting by his technique; and there seems to be no manifest reason why the modern architect should not use such elements, as in fact his ancestors always have done, to beautify his work, without too great regard for their constructional worth; only provided he does not use them for purposes of intentional deceit.

We may illustrate this by reference to the types of the arch in general use on the exterior of buildings, and which are accepted by all of us as beautiful in form.

In the ordinary round arch the pressure line runs in a direction which is not concentric with the curve of the arch. Certain parts of the arch stones are, therefore, constructionally valueless, and if we attempt to work quite logically we should build our arches in a strangely ugly form, keeping the line of thrust in the middle of our arch stones and increasing them in width from top to bottom. We should furthermore give up the emphasis of the key stone, for there is no constructional reason why this should be larger in height than the next stones to it. But think what would be our æsthetic loss if logical criticism compelled us to discard the use of all arch forms which do not comply with the logical constructional thrust lines. Not only the round arch would disappear from our exteriors, but all forms of the pointed arch would make the glory of Gothic architecture.

And in this connection it may be well to note that we should to-day be unable to enjoy the beauty of the maze of flying buttresses in the Gothic cathedrals had the medieval architects understood how to calculate thrusts as accurately as we do, and had they expressed these thrusts logically. In the construction of a vaulted roof, held in place by a double set of flying buttresses, such as is seen in the great cathedrals of France, the thrust of the main vaulted roof does not correspond with the form of either of these sets of flying arches, but with a line which cuts through the wall between the height of the two. There is evidence that the first builders of the large vaulted roofs put in only one set of flying buttresses, but finding that when they did so the walls were pushed out at another point they then put in the other set of buttresses to counterbalance this newly-discovered pressure. In subsequent structures they then used the double set of buttresses from the start.

The mass of flying buttresses thus built gave the architects of later cathedrals the type which they developed as we know (yet as we have just seen quite illogically) into the beautiful forms which entrance us as we view their finished works.

It is thus that great architects have invariably used forms developed in constructional practice, as merely decorative features; and if the

beauty of the result is sufficient to arouse our enthusiasm we do not hesitate to condone the slight inconsistency. It is thus that the Romans used the Greece-born orders, being content to accept and adopt forms perfected by long use in other relations than those which were appropriate to their civilization, and while adapting old forms added elements of grandeur and proportion, which lead us to overlook altogether the illogical usage. It is thus that the Venetians used old constructional forms as purely decorative elements to add to the beauty of their well-studied compositions; and we forget, and quite properly forget, the inconsistency in the joy we gain from the entrancing groupings in their waterside palaces.

It is, of course, to be conceded, as has been suggested above, that the ideal architect, or race of architects, would avoid such inconsistencies, but even in the architectural work of the Greeks, which reaches to the highest grade of structural consistency, we find, e. g., in the triglyphs, the modillions, the dentils, of their masonry temples, the use of forms which had been perfected æsthetically in wooden structures, and which were then used decoratively, but from a structural standpoint not truthfully, is stone construction. In the development of the Gothic cathedrals, which many think of as the best examples of an architecture of thoroughly logical construction, we can easily trace the same practice; for example, in the use of many tiers of flying buttresses of which we have spoken above; and again when we note the blundering steps by which the columns of the basilica, used first as mere columns, were gradually transformed into buttresses where engaged in the walls, or into piers where standing isolated and free.

Our conclusion then is this, that the expression of constructional Truth in Architecture is only one element amongst many which are at the command of the true artist-architect, for use in the production of beautiful buildings; a most important element, indeed, and one which if skillfully used must add great satisfaction to the trained observer; one also which cannot be disregarded without great risk of ruining the beauty of the building in which the architect is expressing his thought. But for all that, we are compelled to agree that in many cases this constructional and practical worth may quite properly be subordinated to other elements which are incompatible with it, provided the latter, without it, are capable of producing æsthetic results which with it would be impossible of achievement.

In closing it will be well to make a practical application of these contentions to the reader as a critic; and first let us beg him to consider the many difficulties with which the architect has to contend, and let this thought modify the harsh judgments he is wont to make

on the results they attain. We do not ask him to condone their failures; nor should he be satisfied with ugliness, nor be content unless the buildings they design are beautiful when finished. But it were well if he always looked for the beauties, and not for the faults, and this not for their sakes as much as for his own.

It is so easy for the critic to establish in himself artificial standards which no artist can reach, or in fact ought to try to reach; standards which will prevent him from catching the beauties which the artist intended to present and has succeeded in presenting.

The notion which we have been considering is one of these artificial criteria. If we demand that all structural values, that all uses, shall be expressed to us in a building, and that no forms which have been perfected by past structural usage shall be employed nonstructurally, and merely as ornament; and if we refuse to acknowledge that a building is architecturally noble unless it meets this demand; then certainly we shall find ourselves forced to hold that no truly architectural building has ever been constructed.

But if we agree to gain delight from all forms of beauty which the architect can present to us in his building, (and amongst these we, if we choose, may give pre-eminent place to the expression of structure and usage); if we condemn only ugliness and real failures of taste; then not only shall we aid the artist by higher appreciation of his effort, but we shall add to our own delights, in studying the architectural works of the past and present, joys which will be utterly unknown to us if we fail of such breadth of appreciation as we should surely strive for.

Henry Rutgers Marshall.

WHILE the phases of fashionable furniture have run their cycle—Renaissance, Empire and Eastlake—and emerged into the liberty of choice which reigns to-day, the outward appearance of the piano has remained for many years much as we see it now. Colonial art possesses a recognized style which we utilize daily in architecture, furniture and ornamentation; nevertheless the piano, which came into general use toward the end of the last century, has suffered by the neglect of designers to apply the Colonial features which it was created too late to receive in its first inception. Our progress in the development of tone-qualities has closely approached perfection, but the Colonists were further advanced than we in the decoration of their musical instruments.

Colonial Art has been so fully written upon, and illustrated, that I shall only try to show its possible uses in connection with modern pianos.

To-day we seek our ideal in the classical motifs of the Renaissance, now revived in endless variety. Colonial Art is simply the usage of such of our forefathers as possessed refinement, education, and wealth, and were thus able to gratify their tastes and to import labor which brought with it to this country the essential features of its original environment—brought associations with art and applied its ideas to the construction and embellishment of the homes of our early settlers. These homes we must admit are splendid examples for us to work from to-day. The simplicity, dignity and refinement of the details of Colonial Art, together with the unusual amount of good sense shown in it, place it beyond the reach of adverse criticism.

Let us peep through the keyhole into one of those stately Colonial mansions, its broad hall running straight through the house, opening into spacious rooms each furnished in accord, with delicately constructed and carved furniture, spinets or harpsichords; damask draperies, family portraits and quaint old mirrors adorning the walls;

and mantels bordering the great fireplaces. The host in knee-breeches, silken stockings and ruffled shirt, the hostess in loose flowing gown and powdered hair, are dancing the Virginia reel or the minuet to the music of one of their quaint old instruments—a picture artistic and beautiful.

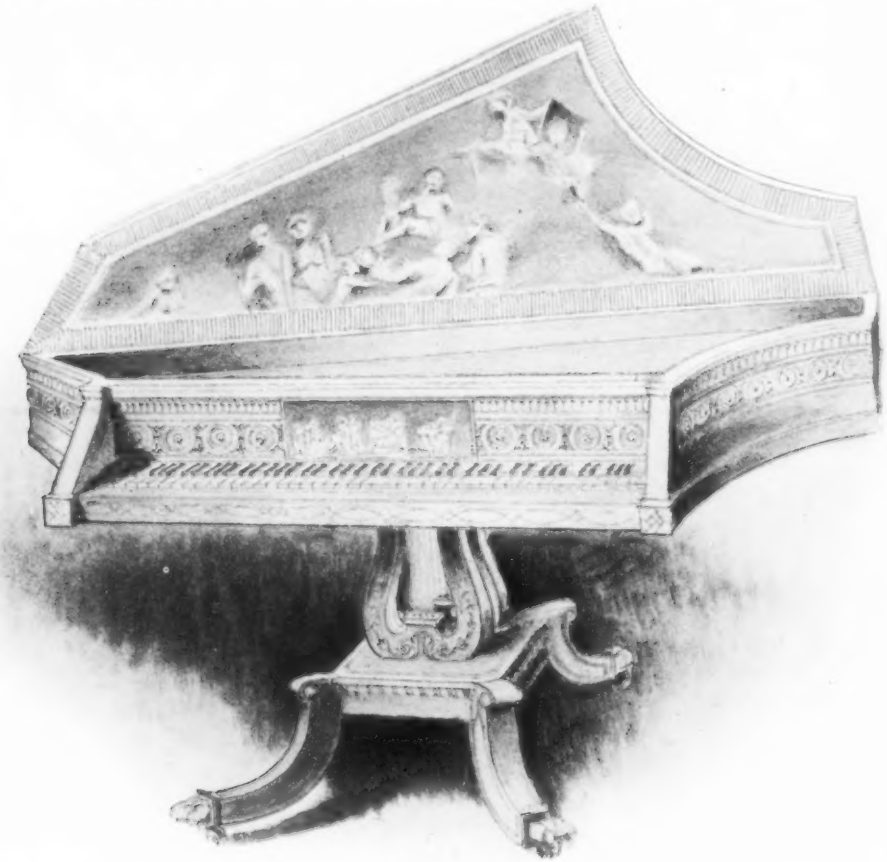
Now suppose the Colonists could have had the modern grand

MODERN COLONIAL PIANO.

piano with its perfection of tone to furnish the music instead of the superficial mandolin-like scratch of the spinets and harpischords, beautifully decorated as they often were; wouldn't it have been a startling revelation of music?

Colonial houses are being built and furnished every day. Is it not incongruous to have the usual piano of to-day, with its massive form and rather severe lines, placed in one of these delicately refined and artistic rooms? Is there not something lacking which the spinets and harpischords generally possessed, such as a lightness and grace

of form which was heightened by the legs, carved with great refinement; by cases beautifully decorated either with oil paintings or chaste inlays? Why are the early instruments so sought for by people of culture and admirers of the antique? Certainly not for their superior musical qualities; but most assuredly for the beauty of their

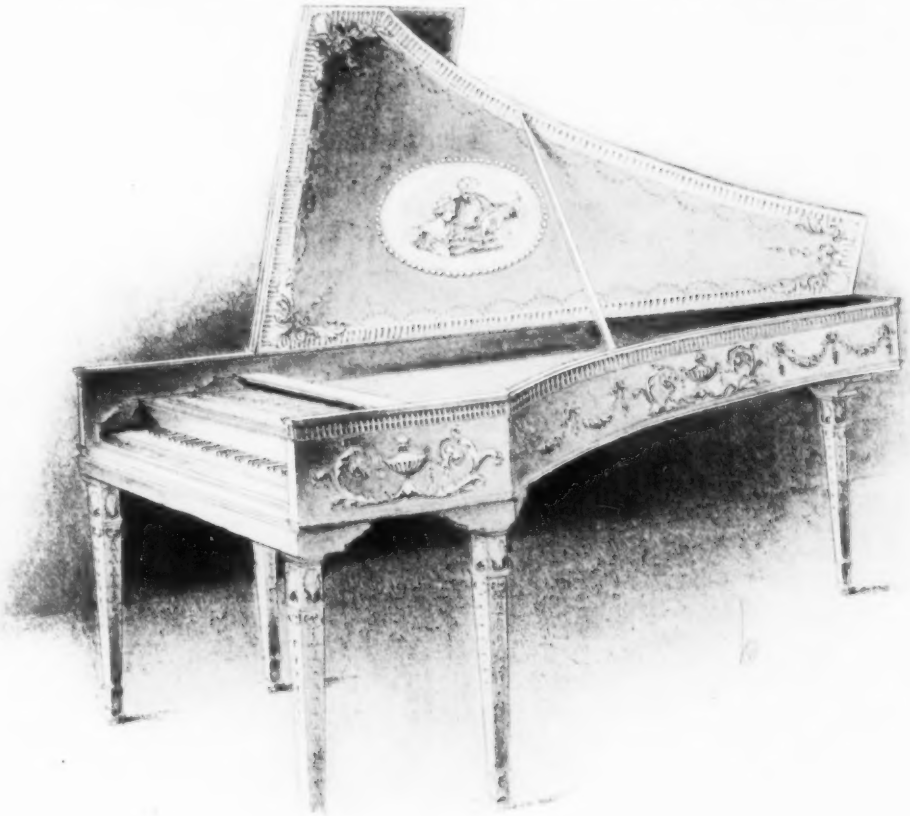


SPINET.

graceful construction, for their picturesqueness and well-balanced lines.

Good taste in furnishing demands that the pianos of to-day should be specially treated and decorated, just as were the harpischords of our forefathers; and demands this even more because we require the best examples of every known style of art in furnishing our houses. We are wider traveled than our forefathers, and thus better able to judge between good and bad art; we have more wealth to gratify artistic tastes. Therefore the artistically-treated piano is no longer a luxury but a necessity; it is just as necessary to have the piano in keeping with the style of the interior to which it appertains

as to have the trim of the door like the trim of the window of the same room. The piano is part of the furnishing like the wood work. Suppose we take, for illustration, a pure Colonial room. Compare the spinet or harpischord with the usual piano of to-day; can you not easily judge for yourself which would be the most suitable piece of furniture for such surroundings? Since artists are just as sensitive



COLONIAL HARPSICHORD.

to form, line, and color as musicians are to music, the same keen sense and true appreciation should rule in each mode of artistic expression in which the piano has a part.

Let us see how we can adapt the Colonial style to our modern piano. Particular attention should be given to lessen the width of case by avoiding all lateral lines; by breaking up the surfaces into panels; covering the piano surface with carvings in low relief; also by using the crotch veneers or painting the panels in color. This concentrates the sight, checks the diffusion of the vision, and, by taking away from the entirety of the object at first glance, affords

opportunity for examination and comparison, and thus excites the imagination. Such expedients used together diminish the apparent amount of surface.

Legs or supports should be light and graceful; yet a feeling of strength should be given by proper design, and they should grow out from the case, as it were, and become an integral part of it. The arm can take many forms—angular, curved or straight. The lyre should correspond with the legs in exact duplicate or be radically different—no intermediate form! The desk should be light in design, or, if the character of the design be heavy, it should be cut through, or perforated so as to look as light as possible.

The outside about the edge of the top should have a band of ornament, delicate in design; and inside this another, in inlay or color, to detract from its large expanse of surface; still within these borders may be paintings or a cartouche of inlay. It would also be proper to repeat the same treatment on the under side of the top, or to blazon the arms of the family, well manteled. A stretcher may be used to tie the front legs, or a series of legs surrounding the case. Everything should be done to lighten the total effect to the eye.

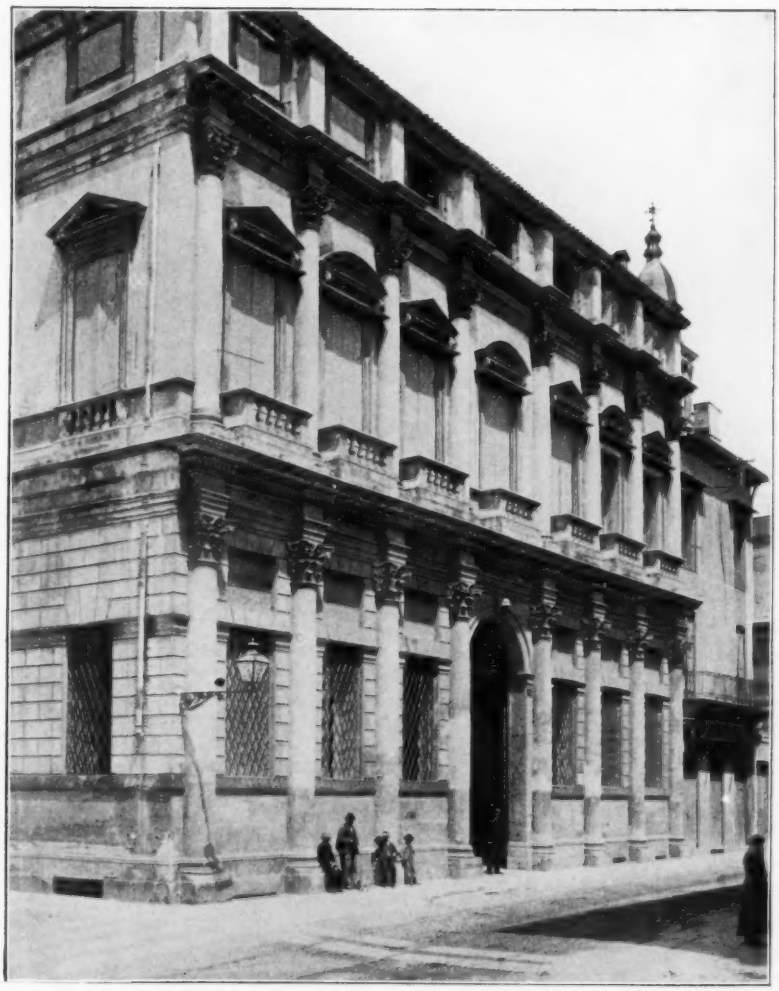
Architects and designers and their patrons should give this too long neglected piece of furniture more thought and consideration when planning for the furnishing of homes, as there is no limit to the possibilities of making the piano an artistic part of the furnishing.

Piano manufacturers generally seem to have lost sight of the necessity of making their wares objects of beauty as well as of utility. The woods and veneers are, as a rule, to be praised, although used with the ever tiresome piano-polish. But in symmetrical proportions, well-balanced lines, harmonious details, pianos are not what proper thought and study can make them. This is probably due to the lack of demand in the past for artistic pianos; while strong commercial competition has forced the majority of our smaller manufacturers into the same groove, until originality, correctness, and the conception of true artistic principles have been entirely overlooked. Thus the piano in these essential respects has become a pitiable object.

J. Burr Tiffany.

IN THE DUCAL PALACE, NANCY.

ALTAR ST. PATRICK'S CATHEDRAL, NEW YORK CITY.



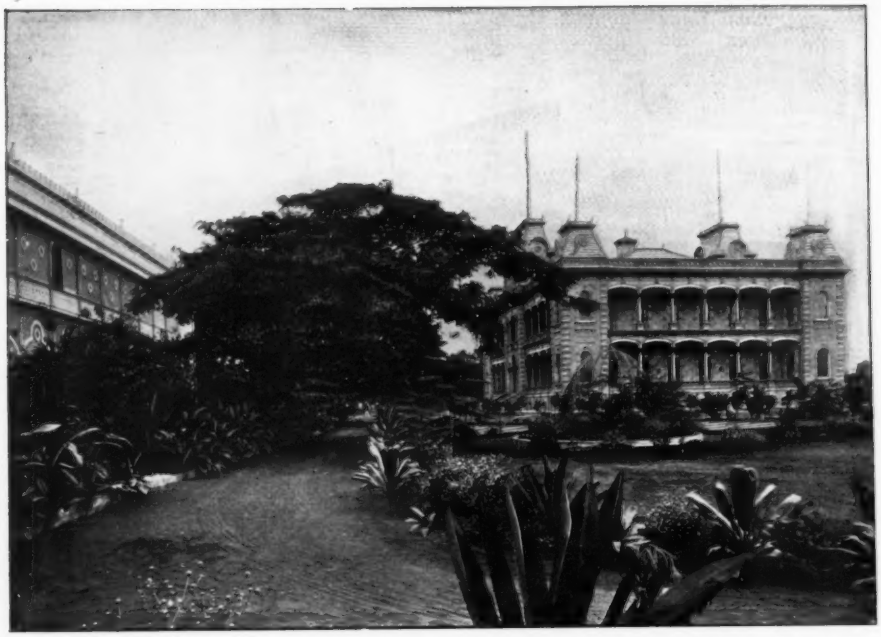
PALAZZO BONIN GIA THIENE VINCENZA.
Palladio, Architect.

HOUSE IN LEUZE, BELGIUM.

OUR ACQUIRED ARCHITECTURE.

WITHIN the past year, the United States have come into possession of a great number of buildings in widely scattered parts of the planet. It is unlikely that they will exercise any perceptible influence upon our domestic, or "metropolitan," manners and customs of building. Such is not the course of conquests. Rather it is that the conqueror entertains a general contempt for the people he has beaten, and refuses to learn even what they have to teach. This was not quite true of the great conquering nation of antiquity. It is true that the Roman had a great general contempt for the Greeks, which took the form of a special contempt, at least during the conquering and "expanding" period, for the arts in which the Greeks surpassed him. But this never led him to deny, that, in these small and effeminate arts, the conquered did surpass him. Those famous lines of Virgil, in which he allowed that "others" might more tenderly carve the breathing brasses and draw living faces out of marble, while the business of the Romans was to rule peoples and lay down terms of peace, were the real expression of the Roman sentiment, the same sentiment which doubtless now prevails in Berlin with respect to Paris. But modern conquerors have not had so much grace given to them. The British, the Romans of our time, have practically refused to recognize that people they could "lick" had anything at all to teach them, and have proceeded tranquilly to apply to their subjects their own view of the fine as well as of the coarse arts. The old Romans, who to be sure had no architecture of their own when they entered upon their career of expansion, had the modesty to pay to that of the Greeks the sincerest flattery of imitation, although they did apply it, as a system of decoration, to an alien mode of construction, and the Roman monuments, in the provinces as well as in the capital, are still found worthy of study accordingly; of too exclusive a study, a good many people are coming to think. But the English have carried abroad their official architecture as faithfully as their bitter beer or their mixed pickles, and the result is that they have produced very little of any interest. It is more than a century since Burke said: "Every other conqueror, of every other description, has left some monument, either of state or beneficence, behind him. Were we to be driven out of India this day, nothing would remain to tell that it had been possessed, during the inglorious period of our dominion, by anything better than the orang-outang or the tiger."

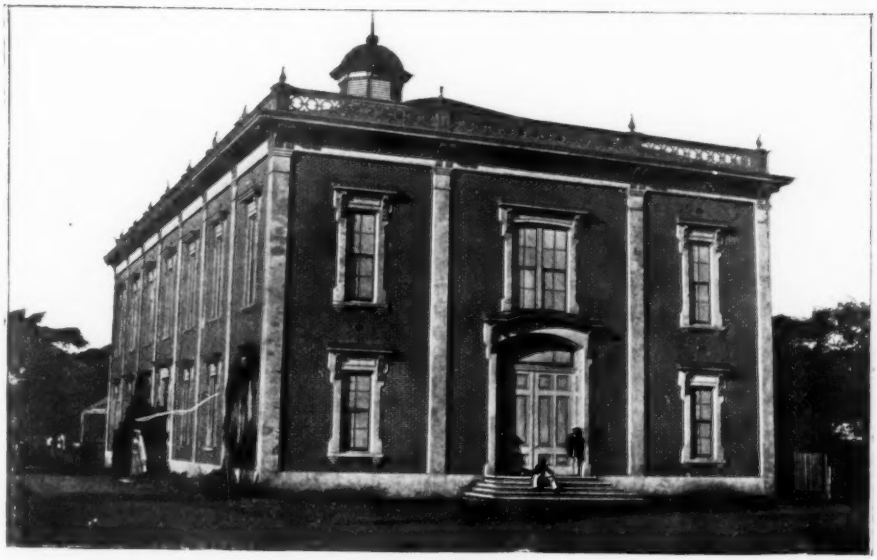
That is far from being true, or even rhetorically plausible now.



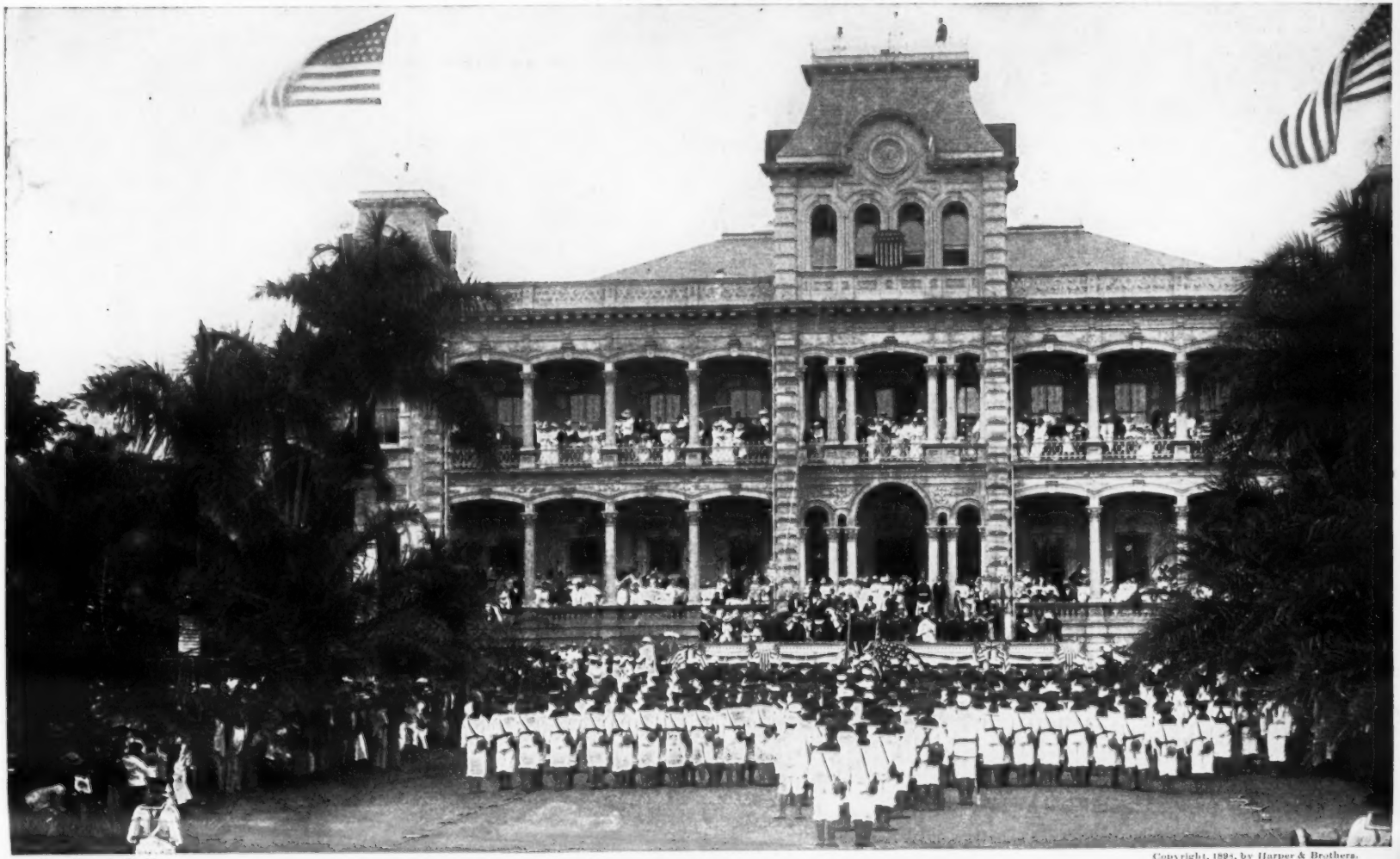
THE QUEEN'S RESIDENCE, HONOLULU.

PACIFIC MAIL SS. CO.'S OFFICE, HONOLULU.

MAIN STREET, HONOLULU.



AN AMERICAN BUILDING, HONOLULU.



From Harper's Weekly.

EXECUTIVE BUILDING, FORMERLY ROYAL PALACE, HONOLULU.

The British have left monuments in their railways, if in nothing else, which it would take a long time to reduce to mere oxide of iron. But when we come to compare the artistic merit of what they found and what they have founded, we find a more than Roman insensibility. Compare, for example, the architectural remains in India of the Mahometans and the Christians, the Taje Mehal at Agra, or the Golden Temple at Amritsur, with the "cathedral" or even with the

CATHEDRAL STREET, SANTIAGO, CUBA.

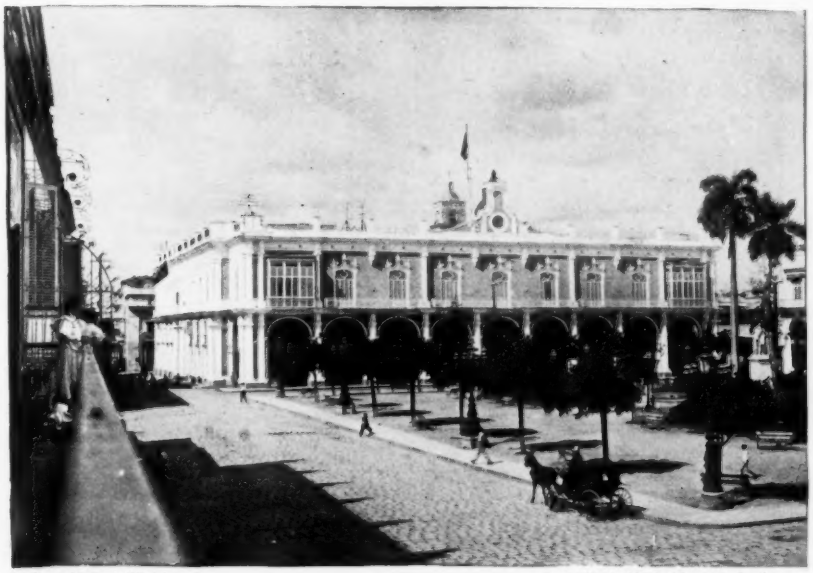
vice-regal palace at Calcutta. The Romans at least refrained from constructing public buildings at Athens or Corinth, to be "to the Greeks foolishness," and to expose themselves to the derision of the conquered.

One of our new possessions has already been architecturally Americanized, much to its injury. That, of course, is Hawaii. The missionaries and the sons of missionaries had their architectural will of Honolulu for two generations, while it was still under a nominally native rule. It was not to be expected that, under the auspices of the missionaries, whose ideas of architectural beauty were derived from the meeting-houses of their native New England, we should even have "sent forth the best we bred," in the way of architecture. The best we bred, when the missionaries were having their way, was not

PANORAMA OF THE PRADO, HAVANA.

THE ROOFS OF HAVANA.

very good, but the missionaries induced the simple Kanaka to believe that the second-best was quite good enough for him. So the public buildings of Honolulu offer a belated reflection of the modes of building that prevailed in the States during the period of the theocracy. Unhappily, this coincided with the very nadir of American architecture, the time when the architecturally protestant carpenter was exercising his "right of private judgment" in that "fancy" building which was about the most vulgar phase through which architec-



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CAPTAIN-GENERAL'S PALACE, HAVANA.

ture ever passed anywhere. Honolulu got the very dregs of it. The crowning vulgarity of the Mansard roof in the American variation of it Honolulu escaped, doubtless because the building activity of the Kanakas antedated its introduction, or at least its journey across the continent. For it is abundantly evident that the official architecture of the Hawaiian capital was imported directly from "the coast," and that architecture, there is nothing invidious in saying now, when the architecture of "the coast" has been so greatly improved, at the time when it was exported to Hawaii, was as repulsive, in its combination of incompetency and pretentiousness, as any mode of building the world has ever seen. Chicago before the fire, or Chicago just after the fire, the spectator of what was built for "the palace" and, during the brief Republic, became the "Executive Building" is moved involuntarily to exclaim. It is an example, although the actual material is costly hewn stone, of the American cast-iron school, meaning, of course, not a style devised for

the material, but a style which imitated profuse ornamentation in stone. And yet the Executive Building does employ, and degrade, actual masonry. Nothing could be more revolting in its cheap pretentiousness than the front of this palace, with the two tiers of stilted segmental arches in the wings, the stilted round arches at the centre, the meaningless keystones and the lavishness of unstudied ornament. The Judiciary Building is like unto it. Rather better, at least much simpler and less pretentious, is the Richardsonian Romanesque of the so-called

CHURCH NEAR GUADALUPE, CUBA.

Kamehameha School. Westward the course of fashion takes its way. Our latest fashion has not arrived at this new possession, but no doubt the Beaux Arts will make its appearance upon the scene in due season, and the simple Kanaka will be edified with pieces of Paris, transported across the American continent "in bond." We may freely admit that it would be better in itself than the civilized architecture he has thus far been privileged to behold, without thereby admitting that it would have any sort of relevancy to his needs. Decidedly, as architectural missionaries, we have not thus far shone in the Pacific. Our architectural procedures have been enough to vitiate the taste of an archipelago.

Meanwhile, the gentle Polynesian, like everybody else who builds

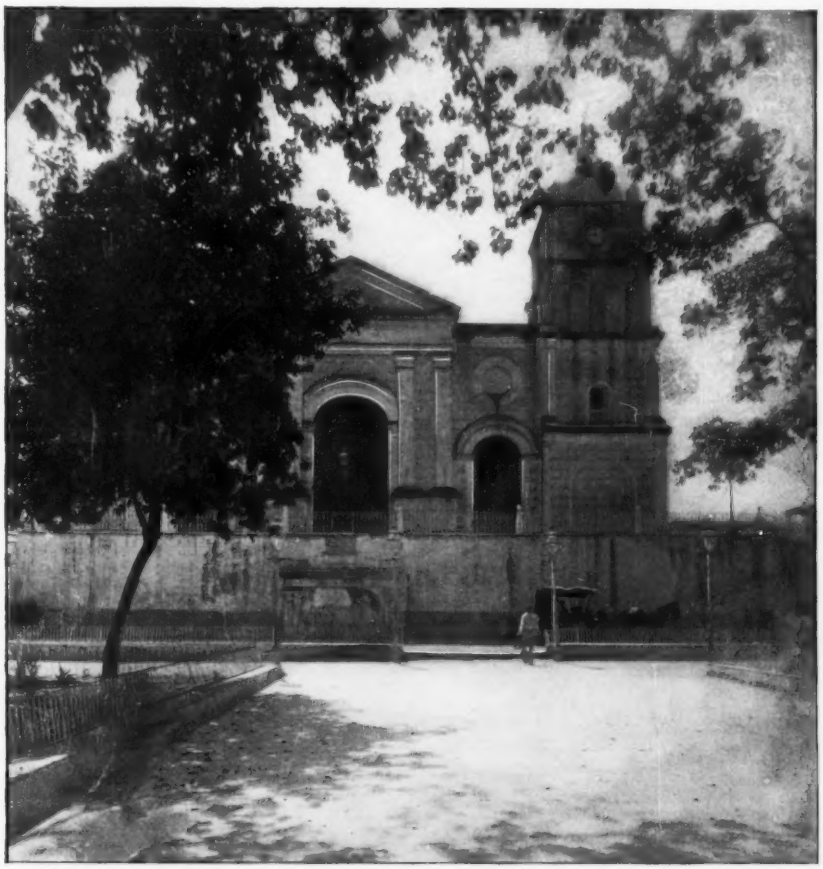
From Harper's Weekly.

GENERAL VIEW OF SANTIAGO DE CUBA.

IN THE SPANISH CASINO, HAVANA, CUBA.

SAN CARLOS CLUB, SANTIAGO, CUBA.

for mere necessity, has devised for himself a mode of building which answers and expresses his requirements. In its general features, it is the same all over the South Seas, even to the Philippines, though these are classified as Asiatic and not as Polynesian, and the local difference among the different islands do not affect the general uniformity. In other words, it is the most natural and easy construction



THE CATHEDRAL, SANTIAGO, CUBA.

to which the local needs point and the local materials lend themselves. But one can scarcely call it architecture, for the reason that it does not go beyond the supply of physical needs, and does not aim at monuments, civil or religious. Under our tutelage, the Hawaiians have aimed at monuments, with the discouraging results we have seen. But, upon the whole it may be said that the building of our new possessions, so far as it has become architectural, has become Spanish. Indeed, it seems safe to go further than that. Apparently the readiest materials at hand in the East and in the West Indies are very much alike, and the construction of the cheapest and most

quickly constructed shelters are startlingly alike in so far, at least, as photography enables us to judge, in Cuba and Puerto Rico, on the one hand, and in Luzon on the other. In each case, it is a hut with a light framework, and a pyramidal roof, the walls, if one may call them so, being covered with thatch as well as the roof. Doubtless these are the "houses" of which we read that so many thousands have been destroyed in Puerto Rico. But it must be the least of the damage done by storms in the West Indies, or by battle and fire in the East, that dwellings so easily replaceable should disappear.

When we go a step higher in the scale of costliness and permanency, but still confine ourselves to idiomatic and vernacular structures, we find the resemblances still hold good. The bungalow construction of a spreading roof and light walls of one, or at most two stories, seems to have domesticated itself alike in the suburbs of Manila, and in the coast towns of Cuba and Puerto Rico. There are differences of detail, but the family resemblance is very striking and the differences of detail seem rather individual than geographical. According to the costliness of the dwelling or "godown," the wall may be of thatch or adobe, and the roof of thatch, metal or tile, but the plan is virtually the same, and the larger and more costly edifice merely an expansion of the smaller. Really the chief geographical difference to be noted seems to be that the roof in the Spanish Main is more apt to be in two pitches, with the lower the flatter. There is in this arrangement a picturesqueness all the more effective for being apparently unconscious. This arrangement does not seem to have extended to the Philippines, but there is there another peculiarity of construction which has an equal effect, and comes to very nearly the same thing. Instead of being built in two pitches, the roof is apt to show a gentle concave curve. In many cases, the effect of this is aided by the fact that on the longer axis of the rectangle which seems to be the invariable plan, the roof is not continued upward to the point, or hip joint, but the upper extremity is occupied by a truncated gablet. It is virtually the same arrangement that is so common in Swiss carpentry, and that is so commonly reproduced in modern country houses. There is another peculiarity of such building in the Philippines as is above the mere improvisation of shelter, while yet not making "architecturesque" pretensions, by which it is assimilated to Swiss architecture, and that is the frequent projection of a verandah in the second story from the whole circuit of the building, by means either of posts continued to the ground or of brackets stopped against the lower wall. Some of the details of this arrangement, and especially the curve of the roof, are evidently of Asiatic, and apparently of Chinese origin, and, as we shall see, Chinese details are sometimes mixed with Spanish architecture in more pretentious buildings than those of

the class we are now considering. But it is plain from the illustrations that the common building neither of the Spanish East nor West Indies is derived from Spain. The similarities in buildings half the circuit of the planet away from each other, are explained by the similarities in needs and in materials. The result in each case may be described as a large, fixed, and more or less permanent umbrella; that is to say, an erection intended as a shelter, not from cold,

THE CATHEDRAL, CIENFUEGOS, CUBA.

but from sun and rain. These are the requirements of a tropical abode or of a tropical warehouse, and they are met with equal and complete exactness, alike in the Spanish and now American possessions off the Southeastern coast of North America and in those off the Southeastern coast of Asia.

The ordinary town-house of the fairly well-to-do in the Spanish West Indies is more apt to lack than to have a visible roof. Very often, indeed commonly, it is but of one story, raised above the street level by a plain and unbroken base so high as to require at one

or both ends an outside stairway which is a feature of the house and is decorated by a treatment of the iron railings which is often very pretty and effective. The tall openings of the main or the only story give upon a gallery which is another feature. The front is an imitation of masonry in plaster, being almost invariably "masticated," according to the venerable joke that used to prevail when that false pretense was commoner in this country than it is now. It is not a sham in the Antilles, since the coursing and joints of masonry are not imitated, and it exhibits itself merely as a coating; but of course it is not monumental, and it gives the houses to which it is applied a stagey and unreal air, and a collection of them the air of an opera village. This is promoted by the tinting, sometimes in two colors, of the plaster of the front, a process often employed also in the churches..

But, as we have said, this provision of mere shelter cannot properly be described as architecture. It is an interesting and even exemplary mode of building and doubtless a good deal more "sightly" than if it had been done with the recollection, in the minds of the builders, of architectural forms which it seems to be impossible, in that case, to prevent from intruding into structures to which they do not belong. There is this difference; that the common building of the Philippines is really indigenous, while the common building of the Antilles is, historically speaking, exotic, since the extermination of the aborigines was a preliminary to the Spanish settlement. But the common building is as vernacular and straightforward, to all appearance, in the one case as in the other. In each case the "architecturesque" building is, on the other hand, entirely imported, entirely Spanish, and entirely official. This is equally true whether it be ecclesiastical or secular. The church, in a Spanish colony, is the state, the priest as much a part of government as the soldier. When the British captured Manila, it was the archbishop who surrendered the place, and promised for it the ransom that was never paid; and when Cervera took refuge in Santiago de Cuba, it was the archbishop who said that this great victory was not enough, and that it must be followed up by planting the Spanish flag on the capitol at Washington. The convents and the churches in Spanish colonies are just as much "government architecture" as the captain generals' palaces, the forts, the markets or the jails.

This list almost or quite exhausts the classification of "architecturesque" edifices in the late Spanish possessions. It is curious how like they are in all, and how Spanish. The very materials do not seem to vary with the local supplies. Stucco over rough masonry or brickwork has the same effect, and lends itself to the same architectural treatment, as the adobe which is substituted for it in the Spanish-American settlements. The stucco walls and the tile roofs

are the marks, wherever they are found, of the Spanish domination. And the uniformity of the treatment is as marked as in the Roman monuments erected in Roman colonies by Roman engineers. It is so marked that one has to look with care for local variations. I have already noted the concave curve of the tile roofs in the buildings of

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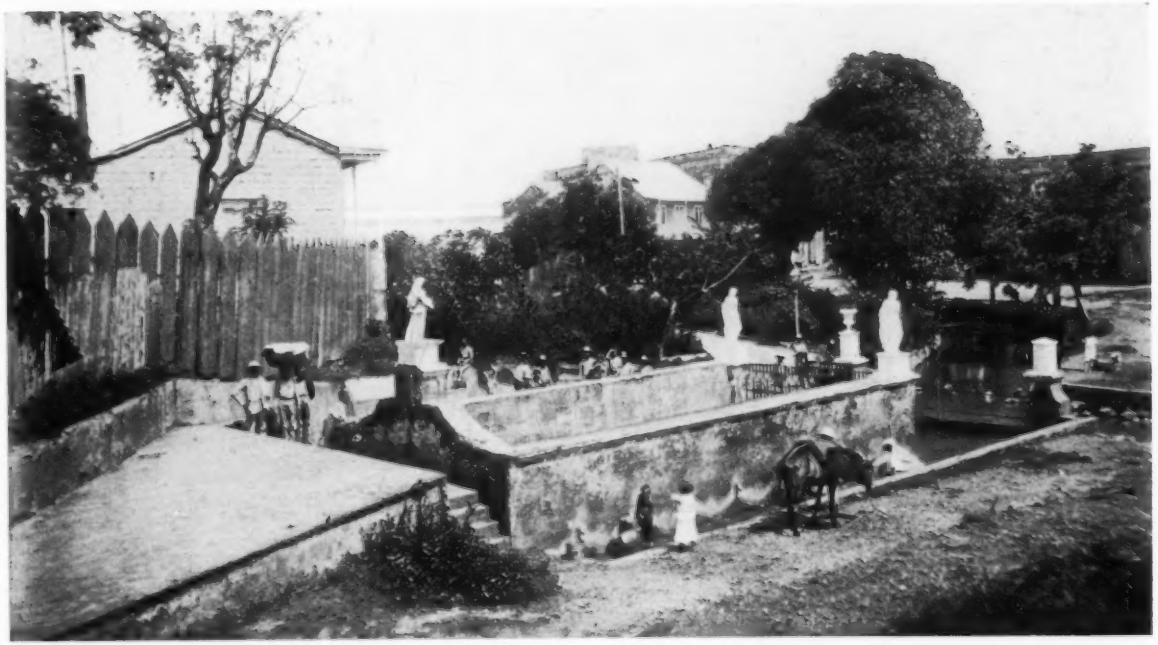
CATHEDRAL AT GUAYAMA, PUERTO RICO.

pure utility in the Philippines as an Asiatic and more specfically a Chinese detail. When used architecturally, it may become still more effective. In the Chinese church, near Caloocan, it is used unmistakably as a badge of the nationality of the parishioners. In this case not only has the slope of the roof, but also the ridge, a concave curve, and this latter ends in the unmistakably Chinese upward curving horns. This Chinese roof is dropped between two pavilions of as unmistakably Spanish architecture, with a queer and picturesque as well as with an unmistakably designating and expressive effect. In another case, this time a piece of military architecture, the gate in the wall at Cavite, the Asiatic curve of the roof is introduced, albeit with a straight ridge-line, and over a rich and very Spanish entrance, in a still more artistic way and so as to complete effectively an extremely picturesque piece of architecture. I should very much like to see anything as good as this in the military architecture of the United

PLAZA DE COLON AND CITY HALL, MAYAGUEZ, PUERTO RICO.

States. The best that we can do in that way is the kind of thing we were doing at the beginning of this century, when even military engineers seem to have had some training in architecture. The entrance to what is now Castle Garden in New York, is a very good example of what we were doing then. There is an example of very much the same sort of thing at Manila, in the entrance to Fort San Antonio, where the American flag was first raised after the surrender. This entrance is a round arch between an "order" of banded columns and under a pediment, and is a conventional and very good specimen of the architecture which military engineers learned until well on in the nineteenth century. All the greater is the contrast between it and the Orientalized Spanish of the gate at Cavite, which is evidently the individual work of an architectural artist. What could be prettier, more expressive or more effective than the way in which the guard-house emerges from the wall falling away on either side, or than the way in which the portal is projected from the guard-house and connected with it by the prolonged slope of penthouse roof, and the upper stage, with its central niched saint, so craftily punctuated by the plain square holes on each side and the happy little eyebrow in the roof above? In all this there is an art very far beyond military engineering. One can hardly be mistaken in attributing such a design as this to the influence of the genius of the place; though indeed Spanish architecture, in the Peninsula itself, is so Orientalized that it is impossible to be quite sure.

Most important of all the public architecture of the Spanish colonies is, of course, the ecclesiastical. Just as, in Spain itself, the churches are more numerous and more gorgeous than anywhere else, except in Italy, and in comparison with civil and domestic building more important even than in Italy, so in the outlying possessions of Spain. We have not acquired the most important of this architecture. There is nothing in Cuba, nothing in Puerto Rico and nothing in the Philippines, to be compared with the churches of Mexico and Peru in point of magnitude or importance exteriorly or in georgeousness of interior decoration. And this for the obvious reason that Mexico and Peru are gold and silver bearing countries, and that to strip them of their mineral wealth was the object, in each case, of the Spanish conquest and remained the object of the Spanish occupation. It has often enough been pointed out that this was the original and fatal vice of the Spanish colonization. The spirit of Cortez and Pizarro continued to animate their successors, and after the supply of the precious metals "in sight" had been exhausted, the reason of being of Spanish possession reduced itself to what in China is known as "squeeze;" that is to say, the levying of official tribute on production and exchange, so that the viceroys were enriched as the country became impoverished. But meanwhile the



DRINKING FOUNTAIN AT AQUADILLO, PUERTO RICO.

CALLE DE MENDEZ-VIGO, MAYAGUEZ, PUERTO RICO.

tithes of the Church in the argentiferous colonies were of great amount, and a great part of them was devoted to the erection and embellishment of the churches. It is characteristic that the first really systematic investigation of the architecture of Mexico should only just now have been undertaken, and that by an American enterprise. We may expect from this very interesting and important results. Not only does the city of Mexico contain examples of the Spanish Renaissance of the sixteenth and seventeenth centuries which would be noteworthy in the Peninsula itself, but such examples are to be found in the provincial capitals, as witness the illustration of the cathedral church at Saltillo. The "missions" which we acquired from Mexico with California were not only much later in date, but of much less architectural importance. Wherever we find it, however, the Spanish colonial church is almost sure to be an architectural sham. Its effect is scenic rather than that of reality, just as the gorgeous ceremonial that goes on within it and which is more gorgeous in Spain and Spanish possessions than in any other Catholic countries, addresses itself rather to the imagination than to the reason. Adobe, or sun-dried clay, is indeed, a legitimate, though far from a monumental, building material, and it is often used legitimately in the building of Mexico and in what remains of Spanish building, or has been imitated from Spanish building, in our own Southwest. But in churches and public buildings it is not the rule to employ it legitimately, or, indeed, at all. A coating of stucco is applied to cover and conceal a structure of rough stonework or rough brick, with the same scenic effect that was attained in the temporary and avowedly scenic buildings at Chicago, and the impression it makes upon an observer accustomed to a more solid system of building is of something temporary, something theatrical, just as the effect of theatricality is made upon such an observer by the pageantry of the worship which goes on within, or, in processions, without. The cathedral of Havana is scarcely either so important or so favorable a specimen of the style as we should expect to find in a see which, perhaps with the exception of Mexico, has been the greatest seat of the power of the Spanish branch of the Catholic Church on this side of the Atlantic and north of the equator; but it is a highly characteristic specimen. The great expanses of unpierced wall, relieved with a double order of huge and rather clumsy proportions, the niches, the ailerons, the curvilinear gables; all these things are unmistakably Spanish, perhaps one may say unmistakably Spanish-American. There are other churches in Havana which show the style to better advantage, and which, if not in general composition, at least in detail, exhibit a much nicer artistic sensibility. "The regular thing" in a church of more pretension, especially of cathedral pretensions, is a gabled center of rather low pitch between two mas-

THE MAIN STREET, CALLE DE MENDEZ-VIGO, MAYAGUEZ, PUERTO RICO.

sive towers, perhaps with the corners quoined in actual masonry, while the curtain walls are in plaster, relieved with arched openings bull's-eyes, niches and what not, according to the taste and fancy of the architect. Of such is the cathedral at Guayama, in Puerto Rico, and of such the cathedral of Mayaguez in the same island, familiar to most readers from Mr. Zogbaum's well-known drawing of "Schwan's Regulars on the Plaza," of which the cathedral forms the background. And indeed this indicates a feature to which the Spanish churches owe much of their effect. Enough ground is reserved from secular uses in front of them, if not on all sides of them, to enable them to be well seen. That is a precaution equally taken with reference to important civic buildings. It is one which we might with great advantage imitate, not only in such building as we may have occasion to do in our new possessions, which is not likely to be much, our new possessions being already rather over-stocked with public architecture. We might also very well imitate it in our public building at home. Nothing is commoner than to see the effect of a building lost because such a reservation was not made. To take a third off the actual cost of erection and devote it to clearing a space whereby what was left could be seen may often be good architectural economy. "That is a good building," said one eminent architect of the work of another, "it is a pity nobody will ever find it out." Narrow and tortuous as the streets of a Spanish-American or a Spanish-Asiatic town may be, this criticism is in these towns always successfully obviated.

The steeples, when they have been introduced, are by no means always of the grandiose and pretentious treatment shown in those of Mayaguez. Evidently those of Guayama are not complete, and were intended to receive culminating features, presumably in the form of monumental open belfries. It is noticable that all the Spanish steeples follow the treatment of the Romanesque, revived with the Renaissance, of a succession of nearly equal stages, very strongly divided, rather than that of the intermediate pointed Gothic, in which the several stages were more or less merged in each other. The towers of Burgos have made no impression on more recent Spanish architecture. Burgos is, of course, an example rather of German than of Spanish Gothic. But, in the matter of the roofing of the towers, one comes upon erections, doubtless exceptional, in which the likeness to German work is even startling. The tower of the church at Santa Ana, near Manila, would, in the photograph, be taken by any student for that of a German village church. The equal division of strongly marked stages is as characteristic of the German Romanesque as of the Italian, or the Spanish; the polygonal plan much more so; while the steep hood of roof, with its dormers seems evidently a product of the temperate zone and of a Northern

CONGRESSIONAL HALL, MANILA.

(Here Aguinaldo was elected President. One of General MacArthur's men signalling from the tower.)

THE FASHIONABLE RESIDENCE SECTION, MANILA.

race. It is much more nearly a spire than it is one of the belvideres which in the South of Europe takes the place of the Northern spire. Certainly nobody would take it for a steeple in a tropical island which was a Spanish possession.

The smaller and less pretentious parish churches in the towns and villages, even the little mission churches, show an unmistakable

CALOOCAN CHURCH—THE PHILIPPINES.
(Man on tower signalling to navy.)

family resemblance, scarcely modified at all by local conditions, insomuch that it is impossible to tell from a photograph of one of them whether it is in the Philippines or the Antilles, but impossible not to tell that it is Spanish. In fact, there are examples of the style within the United States, and even in the Atlantic States. The so-called "Cathedral" of St. Augustine in Florida, built about the end of the last century, would be quite at home in Cuba or in Luzon. And there is at Goosecreek, in South Carolina, a curious church nearly a century older, which, to me, is as unmistakably Spanish in its origin, though built, I believe, for the use of the Church of England. The frontispiece of a screen-gable, which is so characteristic of the

Spanish church that is too small to be furnished with flanking towers had not been added, but the preparations for adding it are evident, and the church might be transposed with the church in Caloocan, near Manila, without any sense of incongruity on either side. Even the smallest and humblest of the churches attached to the furthest outlying Spanish missions, as in California, Arizona and Texas bear unmistakable marks of their nationality, and could

ROMAN CATHOLIC CHURCH, MANILA.

change places with such a humble edifice as the church at Agana, on the island of Guam.

The convent is as marked an expression of the kind of civilization which Spain has regarded it as her mission to diffuse as the church. Indeed, the religious orders have had much more to do with the revolts against Spain in the Philippines than the parochial clergy, who indeed seem to have gotten on with their flocks very peaceably. The convent at Malolos has become suddenly historical as the capital, so to say, of the Filipino republic. It was in the church of this convent that Aguinaldo read his message to the first session of the First Filipino Congress, September 15, 1898, and it was in the court-yard of the same convent that, on the same day, the crowd assembled to hear him speak from the balcony.

It must be owned that the interior is both characteristically Span-

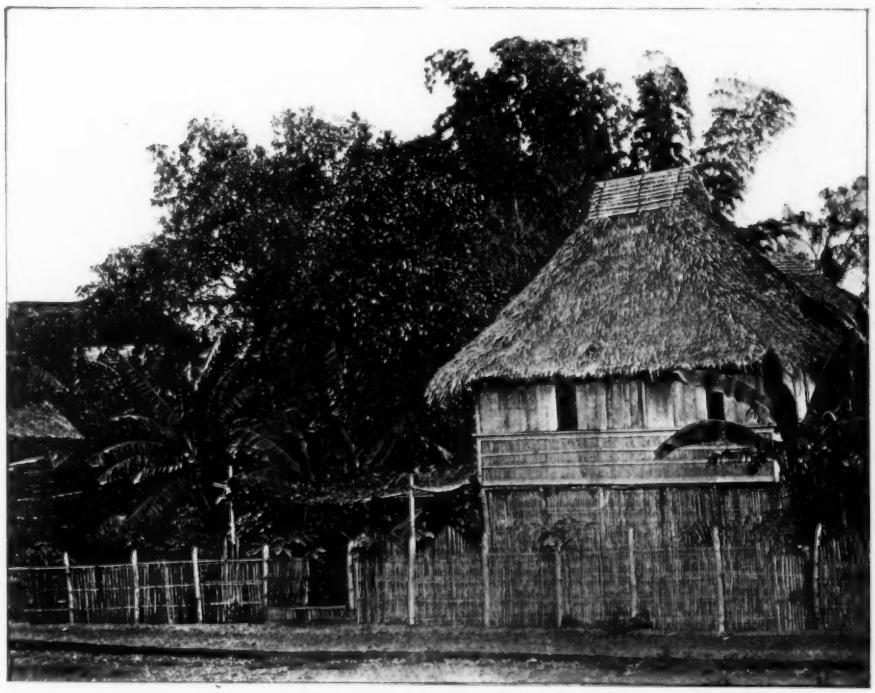
ish and extremely ugly. It shows what Spanish building may come to in bad hands. There is as little correspondence as possible between the exterior and the interior, though an opening does seem to correspond with each bay formed by the posts that divide the nave and the aisles. But there is really no design, no studied relation of parts, no harmony, no rhythm. Nothing could be poorer or meaner than the thin posts with the cornice-capitals that seem to have been nailed on by an American carpenter, unless it be the poverty and

PHILIPPINE SUGAR WAREHOUSE.
(The black spots on the ground are sugar drying on mats.)

meanness of the arches they sustain. In fact, the church is as innocent of art as a New England meeting-house, which it strikingly resembles. It is of no architectural account.

On the other hand, the exterior is of so much account that it seems impossible that the two should have been done by the same person. The court-yard is already secluded from the public road by a considerable withdrawal, outside of which is a covered porch in wood, of nondescript design, which seems to be of indigenous Filipino production, and which is surrounded by lowly thatched cottages that are undoubtedly such. The chief monastic building consists, at the ground level, of a wide loggia, an open arcade behind which is withdrawn the main wall with the actual entrances. A cloister one might call it, though it is open all along at the base, and the effect of it is

undoubtedly cloistral. In the second and only remaining story is another loggia, an open gallery consisting, this time, not of arches, but of square piers supporting the architrave which in turn sustains the roof, and provided with a protective railing. This is a description of the centre, which consists of three arches below, and of five or six rectangular openings above, and which is set off from the enclosing ends by a slight but sufficient projection of these. The roof is an unbroken expanse apparently of dark tile, hipped at the ends.



A PHILIPPINE COUNTRY HOUSE.

The great expanse of the building in proportion to its height gives it a repose which is enhanced by the simplicity of the dispositions and by the unbroken spread of the roof. But it is a studied simplicity, and the effect of it is assisted by the design of the detail. The low piers of the arches are very effective in conjunction with the simply treated arches, of which the impost is simply but sufficiently marked, and the intrados emphasized by a chamfer. Distinctly it is a pity that the piers of the upper loggia should not have been arranged, as apparently they might have been, without any practical sacrifice, with reference to the arches of the lower. In fact they seem to have been placed at random, and the crowns of the arches are as likely to be loaded as their abutments. There is, however, such a margin of strength of abutment that this defect is merely injurious and not fa-

tal, as it might easily become. The exterior as a whole is a good example of what seems to be unconscious and instinctive art, since an artist who had been trained to do so much could scarcely have forborne to do more. At any rate, the building is more than merely inoffensive. It is an expressive and a positively attractive piece of architecture.

The official civic architecture of the Spanish settlements resembles itself as strongly, in the East and in the West Indies, as the ec-

INTERIOR OF THE CATHEDRAL, MANILA.

clesiastical. The Chinese church near Manila, and the picturesque gate at Cavite are, each in its respective kind, unique, so far as goes the information the present writer has been able to gather. The rule is that the builder of a public building, in a Spanish settlement wherever, builds it precisely as he would build it in old Spain. It is one of the results of the immobility of modern Spain that he built it in the eighteenth century just as he would have built it in the seventeenth and that he builds it in the nineteenth just as he would have built it in the eighteenth. The result is that no Spanish public building "dates itself," except by the extent of its dilapidation; and that one has to

resort to external evidence for its antiquity, which evidence is also apt to be hard to obtain. But then it also follows that for the purpose of the merely architectural inquirer, it does not matter when it was built. What could be more different from the state of things here at home, where we live in such a flux of what we always call progress, though in this matter it so often proves to be not so, that one can date a public building within twenty years, and almost infallibly, by merely looking at it? But then also one has to allow that

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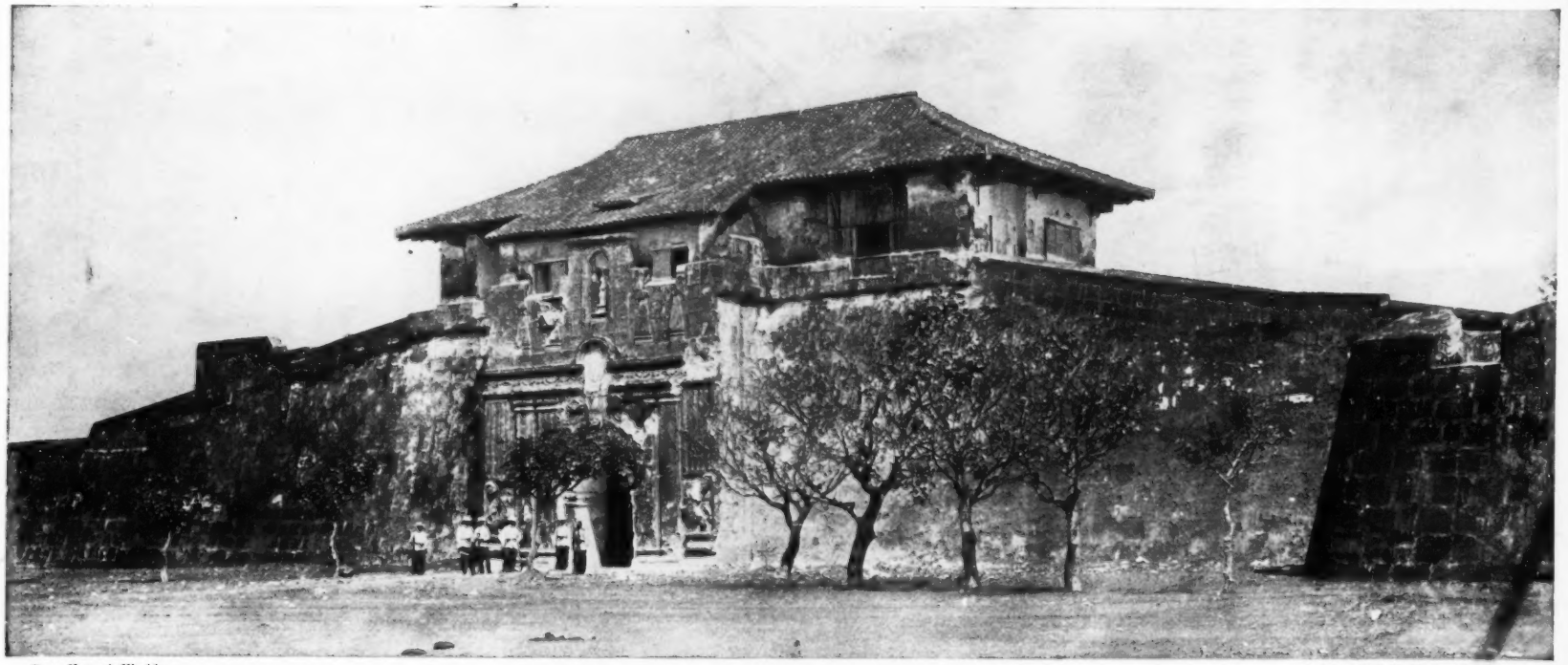
CAPUCHIN HOUSE IN THE LINE OF ENTRENCHMENTS AT MAYTORBIG, NEAR MANILA.

the Spanish builder shows a sense of specific appropriateness to the work in hand, which we do not always get from the American builder. If among his works we find "a palace and a prison on each hand," his palace does not look like a prison, nor his prison like a palace, though each of them is apt to have the dignity that ought to distinguish a public from a private building.

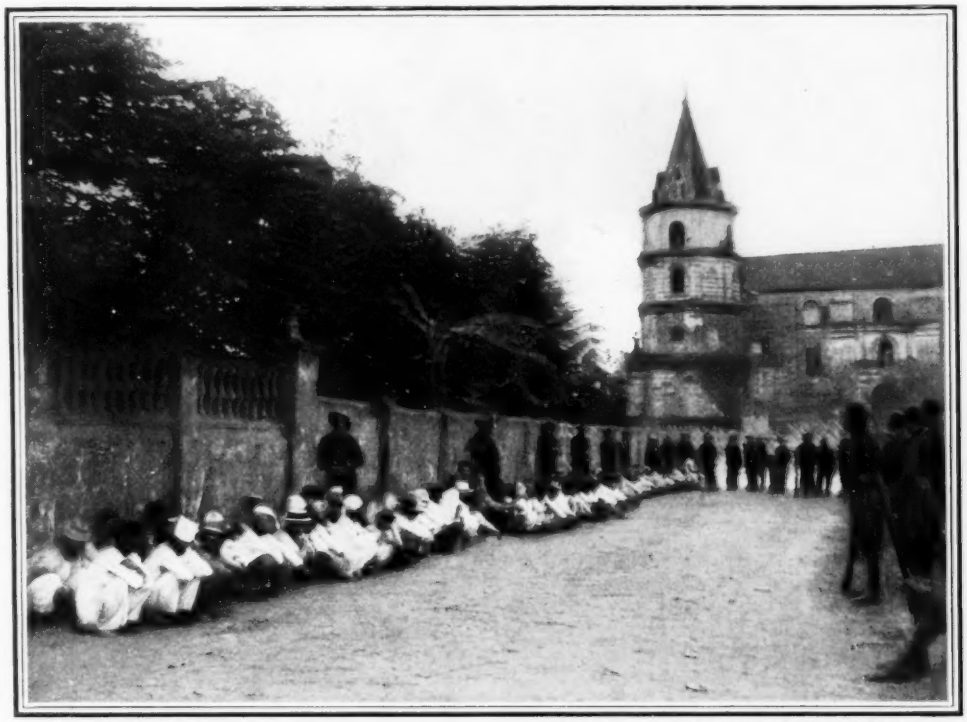
The almost or quite invariable habit, in Spanish towns, of grouping the public buildings, ecclesiastical and secular, around a central plaza, of course adds immensely to the effect of the individual buildings composing the group, and gives a grandiose air to the collection, even when the edifices that make it up are of no great individual pretension. Strangers find themselves disappointed in the aspect of the commercial quarter of Manila, by reason of the squat and flimsy look of the commercial buildings. This is no doubt largely due to the fact that the Chinese have so much of the trades of the place in their hands, for though the Chinese nation be even more torpid than the Spanish, the individual Chinaman shines, by contrast with the individual Spaniard, in the matter of commercial



From Harper's Weekly.

GATE IN CITADEL, CAVITE, NEAR MANILA.

enterprise, and he has impressed the humble character of his native building upon the commercial quarter. But the public buildings of Manila have their impressiveness. The rich Renaissance of the Governor's Palace at Manila is effective in itself. A flat façade containing what is in effect a continuous arcade, though in fact a row of lintelled openings with bull's-eyes above, could not fail to make its impression, and that impression is aided by the very rich and carefully modelled frieze above punctuated with small openings and crowned



From Harper's Weekly.

CHURCH AT SANTA ANA, A SUBURB OF MANILA.

with a well-adjusted cornice with its parapet, behind which emerges the slope of the unbroken hipped roof. This is by no means so striking a performance as the Orientalized gate at Cavite, but just compare it with the Executive Building at Honolulu! It is not that it is rich alone, but that it is decorous and well-behaved. Equally decorous and well-behaved, equally appropriate to its purpose, is the prison at Manila, which does not bear a single ornament, of which the windows are rectangular holes, all alike, and which owes all its effectiveness to a general disposition which is also extremely simple. The projection of two polygonal ends from a centre rather wider than both, and the differences of roofing enforced by this disposition suffice to give form and comeliness and dignity to a build-

ing which, if not directly expressive of its uses, shows nothing inconsistent with them. The roof here, with the two stories of the wall, makes a proportion which could not have been attained in the absence of a visible roof and the other two terms of this proportion are indicated and distinguished by the slight string-course between the stories, one of those simple subtleties that show the designer of the plainest building to have designed in the spirit of an artist.

Upon the whole, however, Havana is doubtless a more satisfac-

From Harper's Weekly.

BRIDGE NEAR MANILA.

tory town to look at than Manila, doubtless the most picturesque town within "the disposition, government and control" of the United States. The private building has much more the air or solidity and permanence, an air which it owes to the common use of stone, and the very frequent employment of white Italian marble. Also it flowers out more frequently into decoration which really does decorate. And upon the whole there is more art about the public buildings. The Peninsular institution of the "patio," ultimately an Oriental institution reminiscent of the seclusion of the zenana, is an excellent device for tantalizing the by-passer and keeping his curiosity awake as to what is going on and what is to be seen behind the dead wall. The dead wall itself is

susceptible of "treatment," and often receives it, which emphasizes its extent and its massiveness, and such apertures as may be required in it are all the more effective for being thus powerfully framed, while the apertures themselves are necessarily the objects of design. The glimpses of greenery caught through the openings or over the garden wall, are more charming for being but glimpses, and they suggest a mode of "laying out" a residence which might with great advantage be adapted and adopted in cities within the temper-

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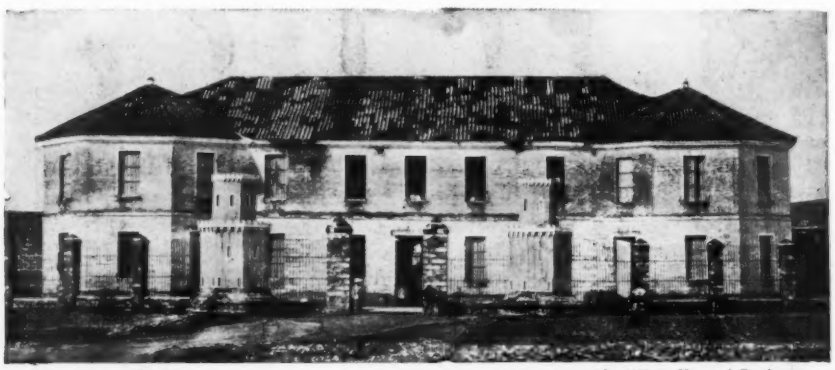
CHURCH, AGANA, PHILIPPINE ISLANDS.

ate zone. Mr. Carnegie, in the plans for his new palace in New York, is the only multimillionaire who has thus far seen his way thus to enhance the effect of a town-house, and to take as much ground, or "grounds" as he needed, even where land was enormously costly.

The seclusion of domestic architecture, the fact that the street fronts consist so nearly of dead wall, has a great advantage in the relief and setting which such a mode of private building gives to public architecture. In American cities in which the sky-scraper has begun to prevail it has become quite out of the question that public buildings should be signalized "above" private buildings in the most obvious and unmistakable way, by a superiority in actual altitude. Trinity spire, for more than a generation the landmark of Manhattan Island from the West, presents now a melancholy aspect, ineffectually spindling heavenwards among the huge bulks taller than itself, by which it has come to be surrounded. The simplicity and

especially the lowness of the private building of Havana, generally of but one story and almost invariably flat-roofed, makes it feasible and even easy, by a mere increase of scale, to give relief and detachment to a public building, even of two stories, and none of the public buildings of Havana has more. What, in a city of low shops and houses could be more effective than the bulk and height and expanse of the Columbus Market, or what more rational than its general design, an ample, a more than ample corridor and "ambulatory" surrounding it, the arcade abutted at the corners by powerful piers weighted with heavy pavillions and the centre distinguished by the emergence of a pavillion of an additional story, with a balcony at its base? If we have any monument in New York of this kind and degree of impressiveness, it is the Madison Square Garden, and note



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PRISON AT MANILA.

well that the impression of the Madison Square Garden, even apart from the tower, is distinctly Spanish, an impression which it owes less to its detail, though that is Spanish also, than to the general composition with the unbroken extent of the low walls, broken on the short sides by central "features," and on the long sides not at all, thus showing a wise and modest belief that to exhibit and emphasize the mere brute length of such an expanse is more efficacious than anything the architect can "do with it" by trick and device. The Columbus Market might have been the prototype of the Madison Square Garden.

There is another civic building in Havana quite as noteworthy, perhaps more noteworthy, in its very different way. That is what was the palace of the Captain-General, and is the headquarters of the American provisional government. This, again, is of two stories only, but it has not only the relief of the low building of the city in general, and a decided distinction of scale. It has also the effectual detachment of the plaza, which, as has already been said, the Spanish planners of cities never failed to provide for their public monuments.

Here also the lower story is an open arcade, and here also this feature in a public building gains additional effect in a city in which the basement of the private, at least of the domestic building, consists so almost invariably of dead wall. The difference in the first place emphasizes the publicity of the building which is so accessible in contrast to the privacy of the building of which the access is so jealously guarded, and emphasizes by its infrequency the value and picturesqueness of the feature itself. There is one grave defect in the treatment of the arcade in this building. It is a defect very common in the architecture of the South, including that of Italy as well as that

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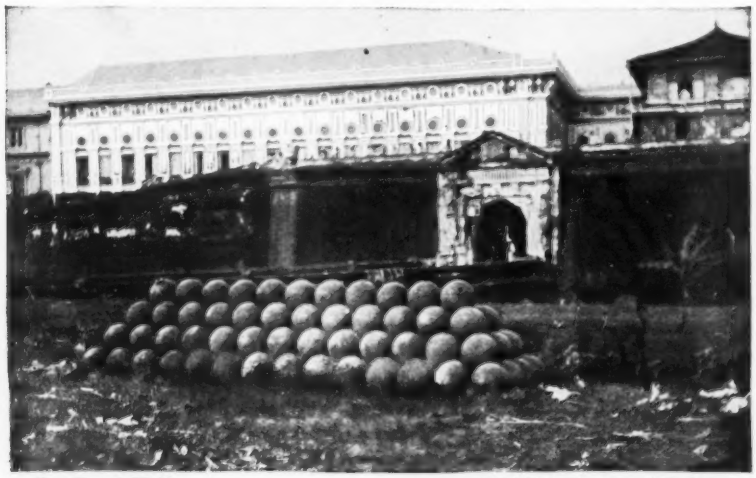
CHINESE CHURCH NEAR MANILA.

of Spain, though it has been entirely avoided in the design of the Columbus Market. It is the same which constitutes the chief drawback to the complete success of the Doge's Palace in Venice. That is the want of a visibly complete and effective abutment at the ends of a long arcade. Here the terminal piers are scarcely more substantial than the intermediate piers, and are visibly inadequate to the work that is required of them. This is the more remarkable and deplorable because the terminal bays do receive in the upper story the separate treatment which they so urgently need in the lower. A very decided increase both in actual mass and in apparent massiveness is imperatively "indicated" for the ultimate abutments of the

arcade. The evident inadequacy of these gives the front a look of weakness which no skill of detail could wholly redeem. But imagine these terminal bays made of a sufficient solidity, and the result would be an extremely effective composition. Indeed, that is what it is now, in spite of its faults, or rather of its fault. It recalls to the New Yorker his own City Hall, though the developed triple or quintuple arrangement of a projecting central portion and projecting wings, connected by recessed curtain walls, is merely indicated by the columns that punctuate the flat front of the upper story of the



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ARSENAL AT MANILA.

Cuban edifice, and in the continuous arcade of the lower is not even indicated. In revenge, the palace has the advantage of a much freer and less formal treatment, of a much more indigenous and vernacular air, though in fact each building is an exotic and an importation. An importation, that is to say, as to its general composition, but only the New York building as to its detail, for the detail of the Havanese has a delightful freshness and individuality, as if it had been designed, as it doubtless was not, by the man who made it and who enjoyed making it. It is a national possession of which we ought to be proud and careful.

And of our acquired architecture in general we may say that it sets us a standard to which we shall find it troublesome to "live up." The architecture of the Philippines and of the Spanish West Indies is a great deal better, being Spanish, than it would have been had it been "United States." Whoever doubts that has only to look again at those awful public buildings in Hawaii, of which the architecture was introduced under the unbenign influence of the sons of American missionaries. The intrinsic ugliness of these structures is no

more marked than their complete absence of relation to their environment. And one of the excellent points about the building of the Spanish colonies has been its appropriateness to its environment. "Metropolitan" as it is, wherever you find it it seems to fit. It has been modified, as we have seen, in some cases by Oriental influences in the Orient, but it has been modified only by the good sense of the individual architects in the Occident, and yet in either case it equally "belongs." It is true that the Spanish mode of building fits the requirements of the Spanish colonies better than would the American mode of building, if there were any. The sunbeaten plains of New Castile and Estremadura are in summer of a tropical heat, and shelter from the sun is then and there the principal need of shelter. The thin walls impermeable to heat, the long dark open arcades along which one may make his way in the shade, these are features of the architecture of the Peninsula which are equally appropriate, which are even more appropriate in the tropical heats of Cuba and Luzon. And these necessary features are susceptible of a most attractive architectural expression. Some of the most sensitive of our own architects have yielded to the influence of Spanish architecture and tried to reproduce something of its effect. The Madison Square Garden in New York we have already had occasion to mention. Not less noteworthy, in the success with which the essential charm of Spanish work has been preserved in a more individual rendering, is the American theatre in the same city. And everybody is agreed about the brilliant success of the Ponce de Leon, the great hotel in Florida, of which the charm is the reproduction of the charm of Spanish architecture.

Upon the whole, it is a matter for national congratulation that our new possessions seem to be supplied with all the public architecture they are likely to need for a good many years to come. No "thoughtful patriot" could contemplate with equanimity the prospect of having designs for public buildings in Havana, in Manila, or in San Juan de Puerto Rico sent out from the office of the average Supervising Architect to come into competition with the architectural remains of the Spanish occupation. They really could not stand it. It is true that even if we keep American official architecture from appearing in a competition which it cannot sustain with Spanish official architecture, we cannot, if our possessions become commercially prosperous, prevent the American engineer from getting in his deadly work. The "colonies" will need railroads, and the railroads will need bridges and other structures and the American engineer will design and build them. "You must think, look you, that the worm will do his kind." He has already done it to some extent, for the railroads of Cuba are of American construction, and there is a Helotic piece of American engineering on the south coast of Cuba, near Santiago,

which shows what we have to expect. The average American engineer, as we know him, would not have the slightest hesitation or remorse in demolishing such a piece of artistic engineering as the bridge of San Juan, near Manila, and sending to Trenton or Pittsburg for a nice trussed girder or lovely cantilever to take its place. Nay, he would be apt to gloat over the ruin he had wrought and, when he came home, to read papers about his work to his fellow-vandals. If we added our official architecture to our unofficial engineering, such Spanish patriots as might be left stranded in their Americanized homes would get, in a way additional to the several ways in which it is to be feared they are getting it already, their entire revenge. Their countrymen would appear to them, and to the judicious among ourselves, as the "others,"—

> Excudent alii spirantia mollius æra,
> Credo equidem, vivos ducent de marmore vultus:

and the old-fashioned Spanish gentleman would be apt to view his conquerors very much as the old-fashioned Roman gentleman might be supposed, if any of him had been left during the fifth and sixth centuries, to have contemplated the procedures of Attila the "hustling" Hun, or of Alaric, the "up-to-date" Visigoth.

Montgomery Schuyler.

RESIDENCE, No. 9 BLUMENSTRASSE,

F. A. de Meuron, Architect. Hamburg, Germany.

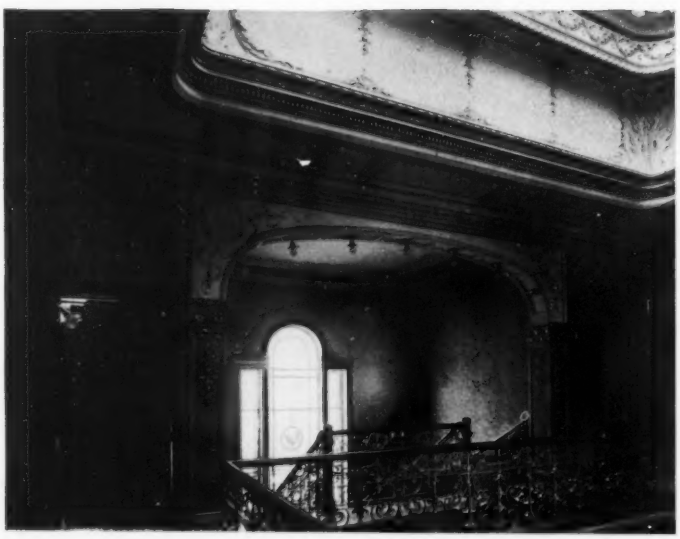
DINING ROOM, No. 9 BLUMENSTRASSE,

F. A. de Meuron, Architect. Hamburg, Germany.

DRAWING ROOM, No. 9 BLUMENSTRASSE,

F. A. de Meuron, Architect. Hamburg, Germany.

HALL.

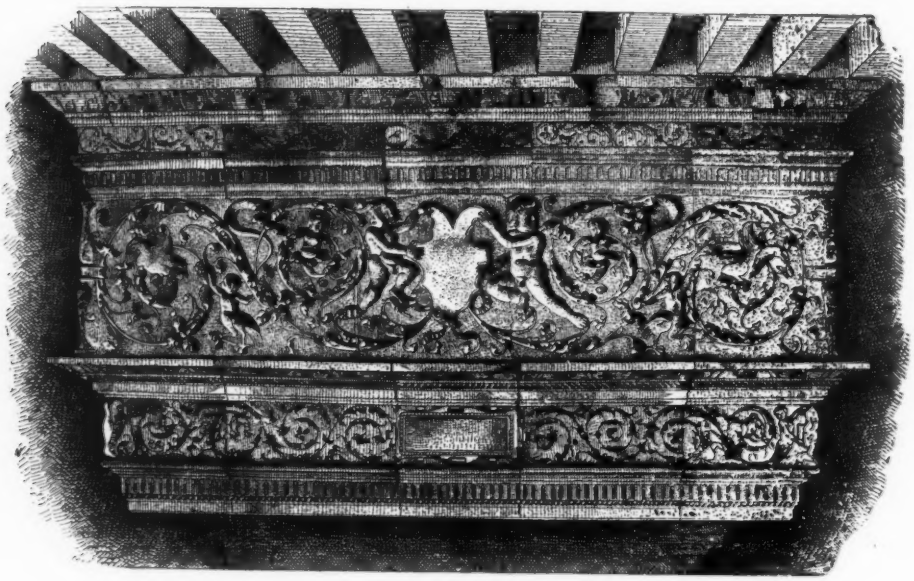


FIRST FLOOR LANDING, No. 9 BLUMENSTRASSE.

F. A. de Meuron, Architect. Hamburg, Germany.

LOUIS QUINZE RECEPTION ROOM.

LIBRARY AND CONSERVATORY. No. 9 BLUMENSTRASSE,
F. A. de Meuron, Architect. Hamburg, Germany.



STONE MANTELPIECE IN AGNES SOREL HOUSE, ORLEANS, FRANCE.

THE FITNESS OF THINGS.

I.

IN the old village of Greenwich, which was, not many years ago, the residence portion of New York City and quite "uptown" by stage along Bleecker street, one of the most familiar occupations in the building line is the renewing of brownstone stoops and fronts. Sometimes one sees the "restoration" of classical details accomplished in a most astonishing fashion. Corinthian capitals, which in their day were the glory of the block, having lost portions of their foliage through the action of frost and sunshine, are "restored" into any "style" or "order" which the artistic instinct of the artisan may suggest, being governed, of course, by the amount of brownstone left in place. Whole stoops are seemingly rebuilt and new faces put on the ashlar, and all by a very skillful use of Portland cement, sand and coloring matter.

There does not seem to be very much which in out of place in all this. The houses themselves served the purpose for which they were built, and for the most part have changed hands and are serving a purpose entirely different from that for which they were intended by their former suburban owners. So also the brownstone had served its day and was no doubt the best material available at the time. It was eminently suited to the purpose and had its color in its favor.

II.

While walking up West End avenue not long ago the attention of

the writer was attracted to the northeast corner of Eighty-sixth street, where painters were busily at work, where, to a practical mind, it did not seem that a painter should have any reasonable excuse for being at work at all. But in these days of ever-changing methods and new processes one is never done learning, and it usually pays to

SARATOGA MONUMENT.
"Battle of Saratoga."
(Of Connecticut Granite.) J. C. Markham, Architect.

keep one's eyes open. The building at this particular corner is a church of some pretensions. The congregation is a wealthy one and had cash when it moved from Twenty-second street and Fourth avenue, where it worshipped in a building which never needed painting to the day it was torn down. But here, where the new structure has not been long occupied, the painters were at work. They did

not seem to be painting this pile of masonry to bring out any color effect, as the color of the paint used varied but little from the color of the original material. The building did not seem to need paint because of smoke and soot having blackened it. It was of a light colored material, and there is no smoke in that part of New York.

The wonder of the observer that painters should be at work there, on closer examination is changed to astonishment that such a building should be faced with material that actually needs paint or something else to hold it together.

One is inclined to cry out against such an iniquity, but, of course, he has no right to do so. The congregation probably is satisfied, and it is nobody else's business They just moved out of a substantial structure, which at the time it was torn down was considered so good that it was to be re-erected elsewhere, and moved into a structure of earthenware which needs painting. The critics who have traveled in the East say that we should not paint our woodwork, that we mar its beauty by even varnishing it. What then must be said of us when we get to painting our masonry? This does not seem to be just the same case as the brownstone stoops in the village of Greenwich. This is a case of material entirely unsuited to the purpose. This alleged terra cotta no doubt would be an excellent body for a stucco front in a more genial climate, but is not suitable for a structure which is expected to look decent five years after it is erected.

III.

At the circle intersected by Eighth avenue, Broadway and Fifty-ninth street, stands a shaft, erected some six years ago by Italians resident in the United States, to the memory of their illustrious countryman, Christopher Columbus. In front is a figure emblematic of Discovery. The monument is surmounted by a statue of Columbus himself, both beautiful pieces of workmanship—of marble. The teeth of our climate has already begun to eat into these marble figures, and before long they will appear like faded bunting on the face of the imperishable granite shaft, sad remembrances of a glorious festive day which is almost forgotten. The shaft stands as a never-dying monument of the Discoverer of our Country. The beautiful statuary emblematic of the Discoverer himself must succumb to the ravages of our climate within a comparatively few years.

IV.

It was reported in some of our newspapers that at the Dewey celebrations at Washington the beautiful statue of the Father of His Country, which stands on the Plaza facing the Capitol, had been

wrecked by an unscrupulous but patriotic urchin who had used his country's ancestor to further his selfish ends. It was not claimed by the news item that the urchin was the first cause of this inglorious downfall of the immortal George. It was mentioned incidentally that the weather had so disintegrated the marble of the statue that it was ready to come down of its own accord.

V.

At the intersection of Broadway, Fifth avenue and Twenty-fourth street, stands the model, life size, of what one day will be without doubt the most magnificent monumental arch ever erected.

Must we, in our generation, witness this arch go to pieces before it is well completed? Or can we in this practical age meet the question of material for this most glorious of all monuments in a practical way? Can we not learn a lesson from the brownstone stoops in the Greenwich of years gone by, or from the short-sighted church, or from the Italian sculpture on the Columbus monument, or from the perishable monument to the imperishable memory of George Washington?

By all means let us honor not only the American navy, but the talented citizens who gave their time and genious and unflinching energy to the production of this marvelous piece of architecture and entrancing sculpture by building it of a material which will last till the end of time.

MAUSOLEUM FOR V. HENRY ROTHSCHILD.
(Granite.)

Brunner & Tryon, Architects.

RESIDENCE OF MRS. THOMPSON.

(Indiana Limestone.)

Madison Avenue and 41st Street, New York City. Montrose W. Morris, Architect.